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PRESENT BUSINESS PERIOD OFFERS A TELEPHONY OPPORTUNITY

The real test of a man's mettle comes in times of trouble, and the same is true of a business concern. When everything is booming along on a smooth road at high speed, it is easy to make progress and sing (or whistle if you can't sing) cheerfully while you forge ahead. But it takes real ability, real courage, to keep moving ahead when the going is hard and rough.

Almost any car runs fast down hill or on the level stretches, but it requires a good, sturdy engine to pull a load up a hard grade.

That is what the poet had in mind when he wrote that "the man worth while is the man who can smile when everything goes dead wrong." As a matter of fact, though, the man worth while will do more than smile—he will work all the harder and do his best to improve conditions. Very probably he will work so earnestly as to forget to smile very often, which may contribute to the general pessimism. Cheerfulness helps, of course, but work is even more important.

* * * *

As has often been said, telephone companies do not suffer so much as most lines of business in times of depression. Telephone service is a necessity in both good and bad times, and experience has shown that in bad times it is often used more than ever to effect economies.

In the present slack business period, operating companies have an opportunity to remind the telephone users in their area of this undeniable fact, and thus increase their own revenues and also help their subscribers. In this connection a message to its employes by the Inter-Mountain Telephone Co., of Bristol, Tenn., contains suggestions that are worth passing on to all telephone companies. Optimism, not fear, should be cultivated, according to the advice of President W. N. McAnge, Jr., the energetic head of the Inter-Mountain company.

* * * *

In the message to employes occurs the following sensible counsel:

"No better opportunity is offered telephone companies to show gains rather than losses in both substations and tolls than during a period when business is slightly off normal. Why do we make this statement?

First: The predominating thought in the minds of executives is to reduce overhead by eliminating employes who can be spared and in turn taking the load that these dismissed people have been carrying and placing it on the shoulders of those remaining. What is the result? Those who remain are under a heavy strain at all times, and every hour of their working day is drained.

These losses in employes may be considerably offset through the installation of telephone equipment at the elbows of the remaining individuals, and thereby save for them their time, which is so precious, until such a time as business is again on a faster-moving plane.

Second: Not only does this need for additional telephone service apply to the office, the business, and the professional man, but it can aptly be applied to the home. Many homes that have heretofore had servants have dispensed with their services that a saving might be effected; but what about the housewife who is assuming these additional burdens?

For less than three cents a day she may have the convenience of an extension telephone on the second floor, in the kitchen, or wherever she considers this additional instrument to be of the greatest service to her. Let us remember that no expense can be wiped out in its entirety. It may be practically so, but seldom is it completely.

Thoughtfulness on the part of the husband in supplementing the absence of the maid or servant by these additional telephones will lighten the burden of the housewife, and result in her having more time to give to the rest of the family, which cannot be measured in dollars and cents.

Third: Our opportunity to increase toll business is the greatest one we have. As stated, in many, many places, forces have been reduced, and here is an opportunity to sell what might be termed 'Telephone Insurance.'"

* * * *

In explanation of the third point outlined, a concrete example, or practical demonstration of selling toll service was given as follows:

"Only yesterday the writer called for the manager of a concern which has two trunk lines. While waiting on one of these trunks for him to finish a conversation, he happened to overhear the statement that this person was going to Emory, Va., to interview a prospect. When he

came over to answer this call of mine, I inquired if he had called to ascertain if his party would be in his office, and if he would be able to interview him upon his arrival. The answer was negative.

Immediately I sold him on the thought that a 30-cent investment would be insurance against a needless expenditure of between 50 and 60 miles of driving and an afternoon's time, which would represent several times 30 cents. Only two hours previous to this conversation, this party had been crying of the press of time and his many engagements to fill.

What was true in this instance will be found so in practically every concern that we serve in Inter-Mountain territory, so herein lies a golden opportunity for every one of us to develop keenly two sales ideas rather than one—station increase and toll increase."

COMING CONVENTIONS

Wisconsin State Telephone Association, Hotel Schroeder, Milwaukee, August 5, 6 and 7.

United States Independent Telephone Association, Hotel Stevens, Chicago, Ill., October 14, 15, 16 and 17.

Illinois Telephone Association, Pere Marquette Hotel, Peoria, November 12 and 13.

Cable dispatches in the newspapers recently announced that telephone operators in Paris had gone on strike, but it only lasted a short time.

This recalls a paragraph in a travel book written by Will Irwin, well known American author, several years ago descriptive of his life in the French capital. Here it is:

"One morning some time ago, to show the solidarity of their union, all the telephone girls in Paris went on strike for 15 minutes. It was not until they read of it in the papers the next day that any of the telephone users even suspected that the system had not been functioning as usual."

* * * *

As a criticism of the Parisian telephone service—in those days—this has all the ear-marks of a dirty dig, but it should be remembered it was written by an American familiar with our telephone efficiency.

The New Exchange and Its Arrangement

Here Is Informative Discussion of Many Points Encountered in the Planning and Construction of Small Telephone Exchange Buildings—Arrangement of Office—First Award, General Division, "Telephony's" Prize Article Contest

By Fred Coulson, Jr.
Assistant Engineer, United Telephone Co., Abilene, Kans.

The business which we find ourselves daily striving to improve is now more than 50 years old. During this time the genius of thousands of experts has created one of the most essential necessities of modern business and civilization. Masses upon masses of the most intricate electrical equipment and machinery known today have been developed and are in use every minute of every day giving service to our patrons.

In giving service to our patrons we must consider the fullest meaning of the word "service" in order to be doing our jobs 100 per cent. Making sure telephone connections are completed is a major item in our efforts to serve. Sometimes we find those who believe this is all there is to service. Let us hope that this type of telephone man is soon extinct.

Surely after 50 years we should not stop, but we could afford to look and listen. Is it not time to think of giving some service to the people in the way of appearances? The dressing-up of telephone exchanges from the agency office to the largest exchange we have should be a part of our programs for the next few years.

Many new offices have been built in the last few years, and many offices have been dressed-up. There is still a great percentage of exchanges upstairs on a side street, you might say. These should come down on the main street with the other important businesses of the town. There is no business more important to a community than ours, and we should not try to hide it.

When we decide to build a new exchange, we naturally consult an architect. We immediately find that the architect needs some help. A telephone office must be built differently from most buildings. Some typical small offices are shown, but do not cover all the problems that confront the builder. Let us review some of the details of the building of a small office.

"A Telephone Office Must Be Built Differently from Most Buildings," Says Mr. Coulson, and He Tells Some of the Details of a Small Office Building in This Article.

In towns where the population ranges from 100 to 10,000 persons, we usually find the main business corner occupied by one or more banks. The town, and especially the business section, grows away from this corner. As we need natural light for the operating room, one of the four corners would be ideal for the new office. Sometimes it is impossible to get one of these corners, but one block either way should find a good corner lot that is suitable. The important thing is to get on the main street.

Until we get into the exchange large enough for common battery, we can get along without digging a basement. This will cut a good bit from the final cost. A basement in the small office has almost ceased to be worth anything, except for storage and workshop.

Batteries are made sealed that will provide for an exchange of 1,500 lines. These batteries do not gas and can be set in the terminal room. Small heating plants are made that look like a piece of furniture, and they can be set up in any part of the office. In our attempts to dress up, we eliminate the piles of junk we have saved for 20 years, and what we keep can easily be kept in tin cigar boxes, painted and put on a shelf in the terminal room. So we find just no use at all for a basement.

Unless we are going to build an agency office in which living quarters for a manager are to be provided, it is a good plan

In the telephone rebuilding program of recent years in many of the small communities, the telephone company has moved into new buildings. And there will be more new exchange buildings erected in the next few years.

The telephone managements of companies operating in communities where new buildings are contemplated are naturally much interested in exchange building plans, and the many points which should be taken into consideration before letting contracts.

In his article on the subject of the "New Exchange and Its Arrangement," Mr. Coulson gives many hints that will be of particular interest to everyone who is concerned with the matter of a new exchange building.

Mr. Coulson has had a number of years' experience in plant, commercial and equipment and testing departments of the United Telephone Co. during his high school and college work. Since graduation from the Kansas State Agricultural College, Manhattan, Kans., he has been engaged in developing building plans for small exchanges, so that what he has to say is based upon practical experience as well as observation.

to build upon a good concrete floor. We immediately eliminate any future floor trouble due to rotting, ants, sagging, and other causes. Do not forget a cable tunnel or pit, provided with enough duct to last the exchange from 15 to 20 years.

Of course, provisions for water and sewage are important also. A concrete floor is hard to get up to fix some bad plumbing that could have been installed to last the life of the building. A number of companies build a concrete tunnel under the floor for these things. A trap door is provided for entrance into the tunnel.

When we come to the walls of the building, we should begin to do some real thinking. Remember this building will be your home for a good number of years. There is a fire hazard to keep in mind. Twenty-four-hour service requires a certain temperature constantly, without Sundays off. The operators must have as cool a place to work in the hot months as possible, for their work is the hardest during those months.

All these and many other details must be thought out before we build the walls. Possibly the best thing to do is to put up good substantial brick walls. Brick veneering on tile will do very well. Do not leave out lighting conduit, etc., in the walls. This should be studied thoroughly, as the nature of the business calls for outlets and conduit in a good many places.

For outside trim, a good brick design or terra cotta trim is generally used. The capping of the walls is important, for all moisture is to be kept out. A tile is made in the shape of a brace (⌇) which is very good for this.

The roof is important. If care is used, a roof can be put on that will last at least 15 years. A good built-up roof will cost from $7.50 to $10 per square and is good if a thin coating of hot tar is applied between each layer. Much could be said about details of a roof, but space does not permit.

One outer door should be three feet six inches in the clear. This allows ample room for moving equipment into the building. The interior is usually plastered. In order to save money, it is advisable to have sand finished plastering done. It is then possible to leave the walls white without painting the first few years. When the walls get dirty, they can be painted a light cream or other color.

Be sure to put metal corner beads on all plastered corners. Windows should have beads at the tops as well as the sides. Nothing detracts from the appearance of an office more than chipped corners. Besides being unsightly, it is a patch job to repair them.

The ceiling is another important subject. If we use celotex bare on the ceiling, several money-savers are incorporated in the ceiling. Celotex is a fuel-saver and also a heat-insulator. It will cut down noise, which helps operating to a great extent. Celotex can be paneled to give a pleasing design to the ceiling. Acousti-celotex can be used in the operating room, but plain celotex will suffice for the small office and does not cost nearly so much.

Do not paint celotex, unless a thin water color is used. Otherwise you would ruin all the acoustical properties of the material. Acousti-celotex, type BB with a sound-absorbing coefficient of 70, the manufacturer of the material states, may be painted or decorated in any manner, without destroying its sound-absorbing ability.

For the heat-saving and insulation, celotex or its equivalent will more than pay for itself in a short time. It is easily cleaned with sandpaper where plaster would have to be painted.

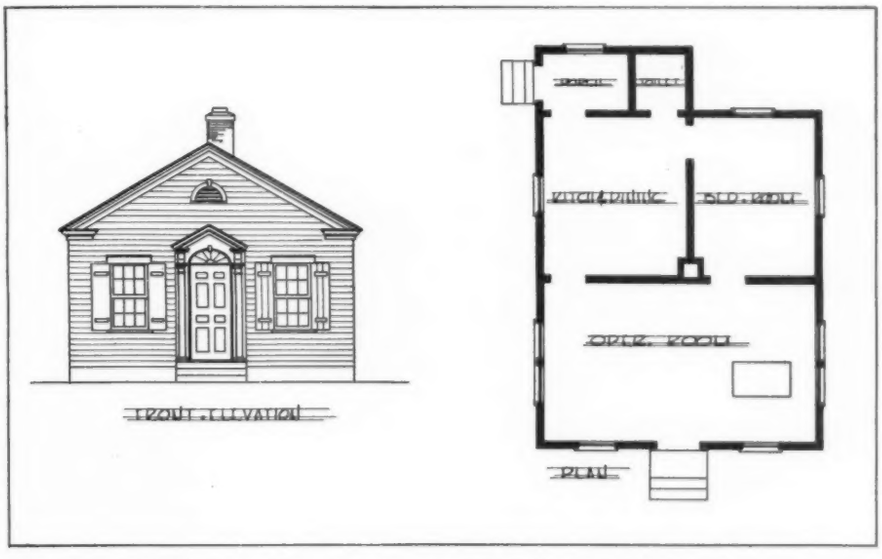
If a concrete floor is laid, the most practical thing to do is lay linoleum over it. The only thing about this is the problem of keeping it clean. It is best not to buy embossed linoleum for this reason. Especially in the smaller offices we find it hard to keep the lobby floor clean. Therefore, a good, smooth linoleum that can be mopped in a few minutes will save time and be kept neater.

We are now to arrange the office. One of the first things to think of is a good, well-lighted and healthy operating room. Assuming a corner lot is being used, let us give the girls the street side. We should provide large double windows for all the natural light we can get. Some sort of venetian blind should be installed, because direct light of too great intensity makes it hard for the operators to see their signals.

The switchboard should be set so the operators will have their backs to the light, except in the one and two-position magneto boards where the girls have considerable time for gazing out the window. It is sometimes best to set the board with one end near the window in this case. The comfort of an operator is an item that helps in keeping a satisfied operating force.

A distance of nine feet is a good minimum for the space between the edge of the keyshelf and the wall behind the operator. This allows a width of 11 feet for a terminal room, assuming that the lot was 25 feet in width.

Unless building an agency office, an operators' restroom should be provided. This room does not need to be large enough for the whole force at one time—but, large or small, it should be comfortable. There are companies that make good combination divans and beds. In the small office this



A Typical Small Agency Office for One or Two Positions of Switchboard. This Building Can Be Built Under $2,500 and Should Meet Telephone Needs in Small Magneto Plants.

piece can be used for the night operator who does not remain at the switchboard all night.

The operators themselves would put up good curtains if the material was given them. A telephone should be provided, for the operator must do any telephoning she has during her rest period. One or two comfortable chairs and a mirror complete the room.

The commercial office belongs to our patrons and the public as a whole. This office should be made for their comfort. It is a good plan to provide some good, comfortable chairs and perhaps a settee for their use. A commercial office could well be modeled after a hotel lobby. A good many companies provide a convenient writing desk with all necessary equipment for patrons who make out checks, etc. A telephone on this desk will relieve booths of local traffic, giving them full time for revenue-producing toll business.

The window between the commercial office and the operating room should be five feet wide and about three feet high with a counter for a sill. This will allow the evening supervisor ample room to take care of CPS toll business when the commercial force has left the office. In offices up to seven or eight positions, the manager can usually get along without hiding himself in a private office. Some companies have completely done away with a manager's office, no matter how large the exchange.

Booths are the hardest thing in the world to keep normally sound proof and still be well ventilated. Salesmen smoking cigars in booths will render them almost useless for half an hour after they leave. If possible, it is a good plan to wall the booths with acousti-celotex. This will provide the sound-absorbing needed, and will allow for some grilles to be placed at the top of the booth and another at the bottom of the door. Some have used a forced draft system, but that method sometimes produces noise.

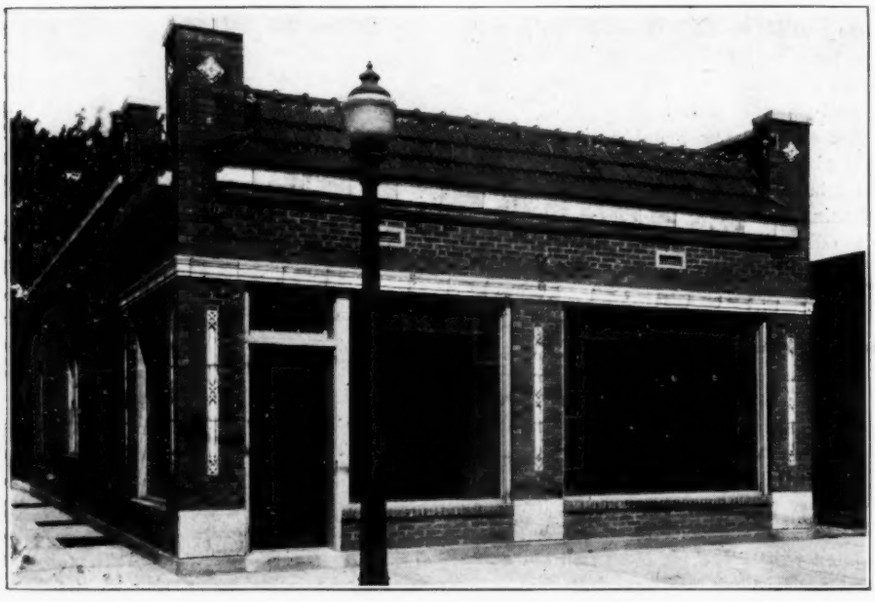
Abernathy's chair No. 499 is a very good booth chair, having a round bottom and a small back with no arms.

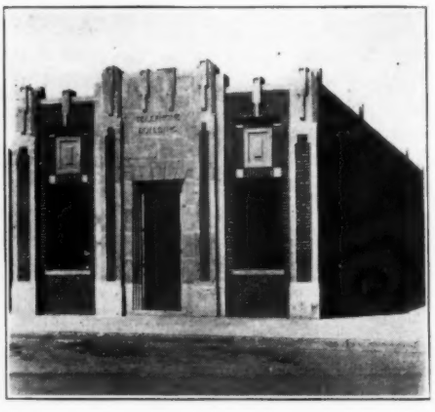
It is best to use bracket lights in booths as they will allow of salesmen writing without getting in their own shadow. Sometimes the booth is panelled up about four feet, six inches from the floor to keep shoemarks off the wall. Five feet is the right height for the light and 33 inches is the right height for the shelf. This will place the mouthpiece of a desk set directly in front of the average person's mouth. Counters are handy for everyone if made in the shape of an "L."

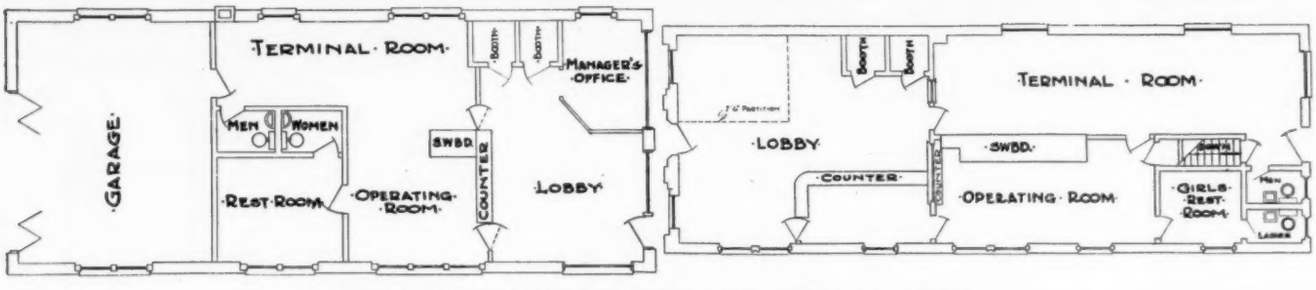
Last but not least is the terminal room. It seems as we grow older, the terminal room is more and more coming to the point of taking what is left. The operators need natural light and good ventilation: the subscribers must have a favorable impression when they call on us and the equipment will work anywhere.

In planning a terminal room, it should be arranged to cover growth for at least 20 years. Carriers and carrier repeaters are being installed everywhere now and we don't know what will be next. A carrier is eleven feet, six inches high, and six inches more is not too much for cabling. Therefore the ceiling should be at least 12 feet high. It may not look as if your office will ever have a carrier, but it might have a carrier repeater and they are just as high. A terminal room is something to be worked out on the job. No one can sit down without knowledge of the particular plant and tell how to arrange it.

In this article a very few of the details have been listed for the building of a new telephone office in any town having between 200 and 1,000 lines. Circumstances alter cases and some of the foregoing details may not fit every case. An attempt has been made to picture the average small-town new telephone office and possibly some idea of the completed building will be obtained from the illustrations accompanying this article.







Small Exchange Telephone Buildings with Typical Floor Plans.

Prices in the Metal Markets.

New York, June 23: Copper—Steady; electrolytic, spot and future, 12c. Iron—Quiet; No. 2, f. o. b. eastern Pennsylvania. $18.00@19.00; Buffalo, $16.00@16.50; Alabama, $12.00@14.00. Tin—Easy; spot and nearby, $29.78; future, $30.12. Lead—Easy; spot, New York, 5.25c; East St. Louis, 5.15c. Zinc—Easy; East St. Louis, spot and future, $4.32@4.35.

Telephone Field Must Exemplify Service

"Render Unto Caesar Those Things Which Are Caesar's"—Service Rendered by Employes Represents Standards of Company—Important People in Telephone Field—Address at Annual Traffic Conference of Illinois Telephone Association

By Abbott D. Spaulding,

Division Traffic Supervisor, Illinois Bell Telephone Co., Chicago

When asked to select my subject for this talk I particularly sought some title that would be general in its import so that I might cover a wide field. Having heard a great many speeches discoursed under the subject of "Rendering Unto Caesar Those Things Which Are Caesar's," I felt that this subject might be very aptly applied to the telephone business.

In applying this particular subject to the telephone industry I have divided it into three parts; render unto your employer those things that are his due; render unto the subscriber the type of service that is his due; and render unto yourself those things that are your due.

In considering the first part of my subject it is evident that the thing for our employer, whether an individual company or association, is to do the particular job assigned to us well. Of course there are many ways of doing a job. We can do an average job, or we can do better than an average job, or we can do a below-an-average job.

If you will recall, there is a recent popular song that is an ode to a strong back and a weak mind, and that is, "I'll Get By As Long As I Have You." Anyone who feels they can get by, and only get by, in his particular job is mistaken. Whether that mistake can be rectified immediately or later is of no consequence, for it is inevitable that should such an employe never be found out, the reaction to personal progress will be such he will more than pay the price of just getting by.

Someone once said, "Anything worth doing is worth doing well," and certainly in an industry that exemplifies the service that the telephone industry must, each individual in that business must put forth the best efforts or the service as a whole will not be all it should be. There is an axiom in our business that the service as a whole each individual subscriber receives can be no better than the service of each individual employe.

This applied to our job—that of operating, of supervising, or of managing a central office—brings home to us the need for individual effort that will produce satisfactory service. Working as we do for a telephone company it is our task to render such type of service in our particular jobs which will go beyond just the ordinary routine of the job.

Now let us consider in its various stages the particular jobs in which we are called upon to take part. The first is that of an operator. Whether she is an operator on a local board or on a toll board, or whether she is an operator in this state, or another, is of no consequence, for the fundamental percepts underlying the job exist the same in all of these offices. What that operator should do in her particular job is to render a type of service that will be satisfactory to the subscriber; and if this is true it will be satisfactory to the employer. Also, it might be said that if the type of job she is to do is satisfactory to the subscriber and to the employer it should likewise breed self-satisfaction, which is her due.

"To Be An Efficient Operator," Says Mr. Spaulding, "Requires Speed, Accuracy, Courtesy, and Dependability. A Supervisor Must Have the Additional Element of Management in Order That the Service Rendered Represents the Standards of the Company."

To characterize the steps of the individual operator in the handling of telephone connections in the various types of offices might be an endless task, but for our purposes it is sufficient to realize that first of all she must be a speedy operator and then an accurate operator. Speed is not everything, but it constitutes an important part in modern telephone service. This is particularly true in our own country, where the public travel in private and business life at a rate of speed that is applied to all types of public service. The thing that gets the subscriber there the quickest is frequently the means employed. Telephone service, whether local or toll, must be fast.

Of course, speed as exemplified by a local connection is a matter of prompt answer to a call or a prompt connection to the called number; while on toll it is a matter of taking the details of the particular call promptly, selecting the toll circuit to the called office, promptly reaching and ringing the number at the distant point and promptly establishing the connection between both parties when ready.

Accuracy in the telephone business is the province of maintaining all telephone connections that are established uninterrupted during the progress of the call, and likewise reaching the particular party or particular called number.

Here the operator's part calls into play concentration on the details of the call; concentration on the particular number desired; and concentration on subsequent work so that the connection is not interfered with.

In addition to speed and accuracy we have the further requisite of courtesy. No telephone service would be satisfactory were it the most speedy and accurate in all the world if the operator handling the particular connection were discourteous to the subscriber. In this realm of service the voice and manner of the operator play a very important part. A courteous tone of voice is essential, and a pleasing and willing manner is necessary, for the subscriber must be led to believe that the operator on this particular call is more than willing to establish his connection.

Looking at the operating job from the the same elements of speed, accuracy and courtesy, but we have the additional element of management or leadership. A supervisor is a central office employe, whose particular responsibility is that of seeing that a certain number of operators are giving the type of service representing the standards of the business. This supervisor, in order to be successful in this task, must be something of a leader.

She must be able not only to inspire confidence in others, but capable of maintaining interest. In addition she must know the full details of the technique of operating, for her prime responsibility is that of developing the individual operator so that the grade of service given in her particular

division is of the best. Individual operator development, so far as a supervisor is concerned, is in knowing the individual working characteristics of each operator, for these play an important part in the operator's manner of handling her particular job.

A constant follow-up of all central office activities is essential if the supervisor is going to maintain the standards of service in her particular division. This follow-up necessitates constant knowledge of the progress each individual operator is making in those particular features of her work needed most in development.

A supervisor's job is one of the most interesting ones in the central office, for she is not only dealing with the technical side of the business, but she is also handling the human side, and consequently her judgment and her tact play big parts in her daily work.

The greatest fault of all supervisors seems to be in not learning to do their particular job in a constructive way. Modern telephone office managing demands constructive supervision; and constructive supervision is nothing more or less than studying the service results of the division and applying remedies with particular individuals at the point where they will do the most good. This is no easy task, for in addition to this application, there is the constant need of being assured that her operators thoroughly understand all practices and purposes, and that these practices are constantly applied.

The job of the chief operator is that of central office manager, and as such she is responsible for the service given in the particular office. Here again leadership plays a prominent part, for she must not only direct the efforts of others constructively, but she must arrange her own work so that a sufficient amount of time is devoted to all phases of the work and thus a proper balance between service and cost maintained.

A good chief operator is an individual who has the faculty of knowing what is required in the office, of knowing what is lacking in individuals, and in seeking to improve both of these conditions.

Following the work of each supervisor as well as that of the individual operator is one of the prime responsibilities of a chief operator. She must lend encouragement to individuals who need it, she must inspire confidence in individuals who need it, she must recognize features of an individual's work needing improvement, and above all she must be interested in the progress of each individual in the office in her particular job.

In this task of dealing with individuals she must readily recognize the value of new material, the value of new operators coming into the organization. One of her first tasks should be to see that the new operators taken into the organization are receiving the proper training and follow-up instruction. I wonder how many of you have ever visited a sculptor at work and seen the sculptor taking bits of raw clay and mould them into a design or a completed statue. This is one of the interesting parts of a chief operator's work, the taking of raw material, new operators, into the organization and moulding these girls so they in turn become good operators.

I wonder how many chief operators realize the full value of this new material and the important part it plays in the future service of the office. If our training of new people is all that it should be, if new operators are being developed so they maintain correct operating habits, then and only then can the chief operator be assured that the service in her office in the future will be better than it has been in the past.

Some offices have student instructors who are responsible for the training of new operators during the first few weeks in the office, but this does not relieve the chief operator of the responsibility of seeing that each new operator meets not only the standards of the office but that her development is such that more practice will lead to greater perfection.

Student instructors occupy an important part in the central traffic organization and these individuals must primarily be teachers. The job of instructing others is one that gives immeasurable self-satisfaction, for of what avail is knowledge if we cannot pass it on to someone else?

A teacher must be patient, she must be interested in each individual in the class, and must readily recognize the individual characteristics of each student. Some students are naturally timid, and here the teacher must recognize the early need for building self-confidence. Other students are careless, and here she must recognize the need for concentration, for determination, and for application in order to overcome this tendency.

Some students will progress much more rapidly in their lessons than others, but this does not necessarily mean that those who do not are unsatisfactory. However, the best place to eliminate anyone from the telephone organization is in the student period; and very careful consideration should be given by the chief operator and student instructor at this time in order to eliminate at this early stage those individuals who in their opinion do not qualify for telephone operating work.

It is, of course, admitted that in all of these jobs there is a need for improvement. I wonder how many of you have ever heard it said that, "The largest room in the world is the room for self-improvement." This to me is self-evident. There are few of us, no matter what our particular jobs may be, who are so good in our work that we cannot do better.

I wonder how many of you have visited the Carlsbad Caverns in New Mexico. These caverns are reputed to be one of the eight wonders in the world, and this is true, for the main chamber of this cave is so large that could take the entire population of this city, multiply it by two, and put all of these people in this main chamber and still not fill it. To my mind, this cave is comparable to the room of self-improvement. In fact, we might say that the walls of this room are boundless and to no one is given the power to realize just how large and how great an improvement can be made.

When I visited these caverns they were very poorly lighted, for the guide and every fifth member of the party had a torch, and standing in the giant room with the meager light we obtained a poor conception of its size. I understand that the United States government is intending to equip this chamber with electric lights and visitors in the future will get a much better idea of the immensity of this underground cavern.

However, as our methods improve in our own business we will likewise get some conception of the need for improvement in each particular job, but we will never fully realize the extent of that improvement as time goes on. This very aptly brings us back to the point of rendering unto the individual that which is his or her due. The right of self-development in the telephone business is very readily recognized, and it rests entirely with us as to whether or not we appreciate this fact. What our future progress may be in this work no one can foretell, but we do know that what it will be rests entirely with us.

It can readily be seen that, reflecting on what has been said here, all three of our given subjects have been covered under the one heading of "Rendering Unto Our Employer That Which Is His Due." If we do this we certainly render unto the subscriber that type of service which is his due, and we render unto ourselves those things which are our due, for the sum of the effort of the whole organization is made up of the sum of each individual's effort.

Speaking of individuals, I cannot close this talk without reflecting for a few minutes upon the type of men and women who

Keep Moral Courage in Life.

Whenever the dark and stormy days of life approach you, remember this: That it is never so dark a cloud that above it there is not always a silver lining. There is always a gleam of light and ray of hope ahead of you, providing that you yourself do not lose your moral courage in life and your belief in the Almighty God.—Capt. Sigurdur K. Gudmundson, noted Arctic explorer, before Executives' Club of Chicago.

have made this business possible. We all know the story of Dr. Bell, who invented the telephone. His trials and tribulations were manifold and his persistence was most unsual.

Thomas Watson, who was Dr. Bell's assistant in this great undertaking, was the type of man who should be an inspiration to all of us; and while he did not occupy the limelight, his particular task was that of playing a big part in the achievement.

Theodore N. Vail, a man of vision, who foresaw the future trend of the telephone industry, was probably one of the greatest individuals ever connected with the business. His task was to organize, coordinate and build so that the future progress of the business would be ever greater than the past.

Men, such as John J. Carty, who is responsible for so many of the perfections of the mechanical apparatus, are an inspiration to many of us not only because of the success of the mechanical end of the business but for his own outstanding efforts, as none of these mechanical devices would have come into being except for their creation in his mind. Consequently he stands over and above the mechanical end of the business. This being true, the human side of this industry is the big side and the one that will determine its ultimate success.

Heroic Women

Discoursing on the achievements of these men leads me to tell you something of the part women have played in this business.

I wonder how many have heard the story of Mary Smith, night operator for the Fabens Telephone Co. at Fabens, Texas. She was the first Independent telephone operator to receive a Vail medal, and her contribution to this particular business is one of the high lights of its history.

Mary Smith is a gray-haired lady, who operated at the two-position magneto switchboard. One night, while on duty at the switchboard, it started to rain as it had never rained before. The telephone office was located on the main street only a few doors away from an arroyo. An arroyo is a small canyon that is dry 99 per cent of the time.

As the rain continued, about four o'clock in the morning Mrs. Smith heard a knock on the front door, and arising from her cot which occupied a space in the operating room she went to the door and opened it. Standing in the rain drenched to the skin was a Mexican, hollering "Mucha aqua, mucha aqua," which in Spanish means "much water."

Mrs. Smith smiled and said, "Yes, I know, much aqua, but don't bother me," and closed the door. She had hardly returned to her cot when the knocking persisted, and going to the door she beheld the same Mexican, who reiterated, "Mucha aqua, mucha aqua."

It happened that back in the foot hills there were constructed three water supply dams. These dams being of concrete had impounded behind them large bodies of water, and as Mrs. Smith listened a minute there at the door, she could hear faintly through the sound of falling rain, a noise of running water that seemed to come from far off. As she listened, this voice increased in volume and intensity until she realized that these dams up in the arroyo must have given way, for certainly no sound of running water had ever equalled what she heard then. Closing the door she stepped to the switchboard and started calling subscribers to warn them of the oncoming flood.

Mrs. Smith was successful in arousing the people who lived on the banks of the arroyo and getting them to flee to safety. While continuing to call subscribers, the first large flow of water struck the nearby arroyo and rushed over the streets of the town, into buildings, and into the telephone office, inundating everything and slowly rose around Mrs. Smith and the switchboard.

When the water was knee deep, the switchboard went out of commission. Undaunted by this condition, Mrs. Smith had her husband fasten a pay station to the wall at the rear of the switchboard where she started calling the surrounding towns for aid. While calling on this telephone the east wall of the building caved in and the roof fell. Fortunately for Mrs. Smith the heavy roof struck the switchboard and formed a canopy over her, which saved her life.

It was my pleasure to be present at the presentation of the Theodore N. Vail memorial medal to Mrs. Smith, and that event will linger long in my memory, for at no time have I ever heard of such an act of heroism receiving its just reward.

Before I close I am going to tell you another story, that of Sally Rooke.

Sally is a pretty name, famous in song and story, but Sally in this case was just a telephone operator who occupied a one-position magneto switchboard in the little town of Cimarron, N. M. Running through this town was a river called the Dry Cimarron, and the tragedy of this name, Dry Cimarron, will be apparent from my story.

Sally Rooke was at her switchboard one day several years ago. While at the switchboard she received a call from one of the rural lines up in the Cimarron Canyon which told her that the dam had broken and that many people who lived in the valley were in danger of their lives.

Sally Rooke did not think of herself in this case, for she stuck to her post and called all the subscribers in the locality and warned them of their danger. The particular heroism of her act is evident when I say that Sally Rooke was at the switchboard when this flood of water coming down the canyon struck the telephone and washed the switchboard and Sally Rooke into eternity.

Not long ago I climbed the hill at the outskirts of Cimarron, N. M. At the top of this hill there is a granite monument on which this inscription may be read, "Here lies Sally Rooke, telephone operator. She gave her life that others might live."

Survey of Fort Wayne, Ind., Telephone Needs Completed.

Completion of a survey, begun last June by the Home Telephone & Telegraph Co., Fort Wayne, Ind., to analyze the present and future need for telephone service in growing Fort Wayne, was announced recently by officials of the company.

The survey indicates continued growth for Fort Wayne and its telephone facilities.

Population estimates point to a Fort Wayne of 160,000 people in 1940 and approximately 200,000 in 1950. The 1940 and 1950 forecast dates were selected because they are census years.

It is estimated that the telephone company will serve a total of 45,000 telephone stations in 1940 and approximately 60,000 in 1950. These figures are for the Fort Wayne exchange only. Today the city, with 115,121 persons, is being served by 33,206 telephones. The company survey estimated the city population to be 115,204, just 83 persons more than the census figure.

The rapid growth of Fort Wayne and the addition of new industries made it advisable to begin a survey last year, a year in advance of the original plan.

Several months were required to do the field work procuring present data on families and firms. The city was divided into a number of districts to facilitate the compiling of field records, from which the population estimates and telephone plant estimates were prepared.

An outgrowth of the survey is seen in the provisional estimate made for this year, which included a gross expenditure for improvements amounting to $88,100. The expenditure is being made for new long distance lines, outside construction and the installation of the new Eastbrook unit in the telephone building.

International Telephone Consultative Committee in Congress.

The International Telephone Consultative Committee began its seventh congress in Brussels on June 16. Representatives of the League of Nations Transit Committee met with more than 100 delegates from various countries. The International Railway Union and electrical manufacturers of many nations also were represented.

The congress had 70 questions to consider, mostly technical, such as the protection of telegraphic lines against outside disturbance, cooperation between wireless and telephone systems, tariffs, and whether international communications should be charged by the single minute or by a minimum unit of three minutes.

Telephony and the Vibrations of Sound

Here Is Presented Part VI from the Chapters on Sound in the Forthcoming New Volume, "Telephone Theory and Practice," Parts of Which Are Being Given Advance Publication in "Telephony"—Discussion of Musical Scale and Tones

By Kempster B. Miller

In music, tones or notes are arranged in a "musical scale" in the order of their frequencies, and in accordance with very definite laws. The method most used in designating the various notes is by the position given them on the lines and spaces

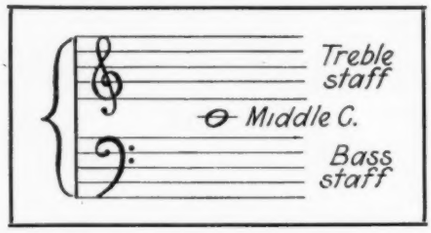


Fig. 53. Musical Notation.

of the musical staff. Each note, or each line and space on the staff, is also referred to by one of the seven letters *a, b, c, d, e, f* and *g*. These letters are applied in this order as one proceeds up the scale, each succeeding series of seven notes being correspondingly lettered.

The note known as "middle *c*" occupies the single line between the base and the treble staves, as shown in Fig. 53. This establishes the relative positions of all the others above and below it. These notes and designating letters on the staff correspond, for concrete instance, to those of the white keys on the piano. So, in the case of any musical instrument, a definite line or space position on the staff indicates a particular note on the instrument.

Each group of seven notes on the staff together with the first note in the next group above cover a musical interval known as an octave. According to the system of notation just described, therefore, the succeeding notes marking octave intervals will always be indicated by the same letter.

Thus an octave extends from one *c* to the next *c* above or below it, and likewise for any other letter. An octave may begin on any note and will include the next seven notes above or below it. Thus any consecutive group of eight notes, such as *c, d, e, f, g, a, b, c* or *g, a, b, c, d, e, f, g,* covers an octave.

The position of any note on the staff is in itself a complete identification of the note, but when it is desired to refer to a particular detached note without recourse to the staff, it is necessary to adopt some system of marking to distinguish the different notes of the same name from each other. There are a number of such systems of notations, some of them so similar as to be likely to be confused among themselves.

The notation indicated in Fig. 54 is the one introduced by Helmholtz and the one perhaps most employed by physicists today. In this, the first seven notes of the octave ending with middle *c* are designated merely by small letters, *c, d, e, f, g, a* and *b*. For the successive octaves above this, the same small letters are used, but distinguished from each other by exponential markings,

Notation....	C_3	C_2	C_1	C	c	c^{I}	c^{II}	c^{III}	c^{IV}	c^{V}	c^{VI}
Frequency..	8	16	32	64	128	265	512	1024	2048	4096	8192

such as c^{I}, c^{II}, c^{III}, c^{IV}, etc., or c^{1}, c^{2}, c^{3}, c^{4}, etc.

Similarly, the successive octaves going down the scale below the octave *c*-c^{I} are designated by corresponding capital letters, like letters in this case being distinguished by numerical subscripts. Thus, the successive *c*'s covering the entire range of the piano become: C_1, C, c, c^{1}, c^{2}, c^{3}, c^{4} and c^{5}.

Now the position of a note on the musical scale is determined by pitch, and pitch only. As pitch in turn is dependent on frequency alone, it is evident that each note must represent a particular frequency. Here again there is some divergence of practice.

From time to time there have been various standards of pitch, some of which have been set by international conference. The one most employed by physicists, and shown in Fig. 54, fixes middle *c*, which is c^{1} on the Helmholtz notation, at a pitch corresponding to 256 cycles per second. This determines the pitch of all other notes on the scale, according to the relationships now to be briefly referred to.

The musical scale, as it has been developed by occidental peoples through a long period of time, has as one of its fundamental characteristics the property that in ascending the scale from any note, the frequency doubles as each succeeding octave of that note is reached, and conversely, in descending the frequency is halved at each octave.

Knowing that the frequency of middle *c* (c^{1}) is 256, this at once establishes the frequencies of all others *c*'s in the scale. Thus:

Having established the relationship of the octave intervals, we may inquire into that of the notes within the octave. In striking two notes on the piano simultaneously, even a person without musical training will have no difficulty in recognizing that certain combinations produce pleasing effects. Those combinations are termed *concords.*

As opposed to these pleasing musical effects, other combinations produce relatively disagreeable effects and are called *discords.* The closest concord is that of the octave in which, as we have seen, the ratio of frequencies is always two to one.

The concords within the octave *c, d, e, f, g, a, b,* c^{I}, together with the frequency ratios of the higher to the lower tones are as follows:

Interval of Concord.	Lower Tone	Higher Tone	Frequency Ratio
Octave	c	c^{1}	2:1
Fifth	c	g	3:2
Fourth	c	f	4:3
Major third.....	c	e	5:4
Minor sixth.....	e	c^{1}	8:5
Minor third.....	a	c^{1}	6:5
Major sixth.....	c	a	5:3

Knowing the frequency of c^{I} to be 256 cycles, this table of concords at once de-

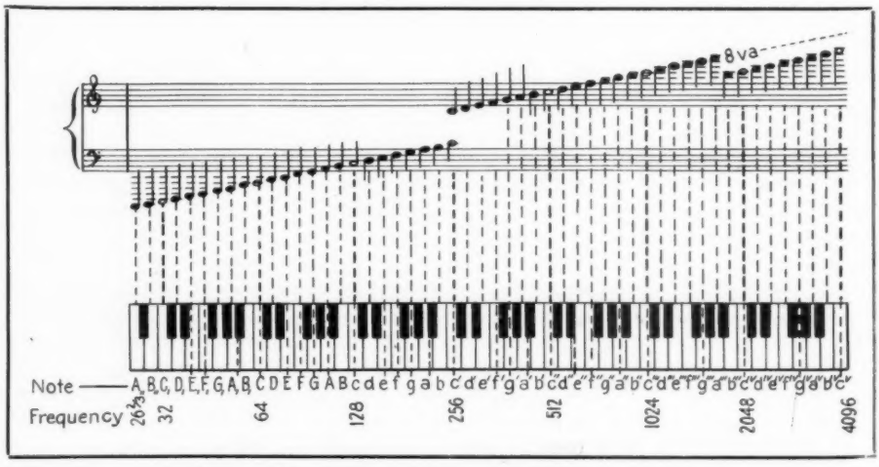


Fig. 54. Notation and Frequency of Tones on Piano.

termines the frequencies of five other notes within the octave, *c*, *e*, *f*, *g* and *a*. Those of the two remaining notes, *b* and *d* may be similarly determined by considering another octave beginning with *g*. In this octave, *g*, *a*, *b*, c^1, d^1, e^1, f^1, g^1, the major third will be *g-b*, and the major fifth *g-d*.

Applying the same ratios for these concords as in previous case, we arrive at the ratio of 15:8 for the interval *c-b*, and of 9:8 for the interval *c-d*. We have then the following frequencies and their ratios within this octave:

Note	*c*	*d*	*e*	*f*	*g*	*a*	*b*	c^1
Ratios	1	9/8	5/4	4/3	3/2	5/3	15/8	2
Frequencies	128	144	160	170 2/3	192	213 1/3	240	256

The study of why these intervals exist in our musical scale would be an interesting one, but it would lead us far afield. Suffice it to say that like the grammar of language, the *diatonic scale*, as it is called, has been a slow evolution by natural selection and, having been thus evolved, the rules governing the relationship have been found out afterward.

The note on which an octave begins determines the *key* of the scale. The octave just considered is therefore in the key of *c*. For all other octaves in this key the same ratios would apply. In music, however, it is necessary to use various keys; that is, it must be possible to consider the octave as beginning on any note.

In attempting to construct the diatonic scale, beginning on other key notes, it is found that the notes so far considered—that is those represented merely by the lines and spaces on the staff or by the white keys on the piano—are not sufficient. Others must be supplied to fill certain intermediate intervals, and for this purpose the various sharps and flats, as represented by the black keys on the piano, for instance, are supplied.

It is also found that when the correct ratios of the diatonic scale are applied for one key, as just described for the key of *c*, the ratios between the various notes do not quite work out in the proper manner when the octave is considered as beginning on some other key note. This makes necessary a slight departure from the intervals of the diatonic scale for such instruments as the piano where the strings are necessarily tuned to fixed frequencies and where the exact application of the diatonic scale could be made for any one day, but would result in certain departures from the proper frequency ratios for any other key.

In order to meet this difficulty, the so-called tempered scale is necessary for all fixed tone instruments if they are to be played in various keys. The tempered scale, however arrived at, is naturally a compromise between two courses; one of having an instrument tuned perfectly in one key and badly in all the others; and the other, of having one where the tuning is slightly but equally imperfect for all keys. For such instruments as the violin and the voice no such compromise is necessary.

While the standard pitch generally employed by engineers and physicists, as illustrated in Fig. 54, gives middle *c* a frequency of 256 cycles, a slightly higher pitch is now largely employed in music. In the International Tempered Scale a^1, the first *a* above middle *c*, is given a frequency of 435 cycles. This is taken as the *key note* from which all others are tuned.

The selection of this particular note is probably due to the fact that it is the note from which the violins in an orchestra are given their pitch for tuning the open *a* string. This gives middle *c* a frequency of 258.65 cycles instead of 256 on the older standard scale.

We may conveniently refer to the piano to obtain concrete ideas of the pitch of tones within the range most often encountered in everyday life. On a grand piano, of so-called 7⅓ octaves, the frequency range from the note $A2$ at the lower end of the keyboard to the note c^V at the upper end is from 27.19 to 4138.44 cycles, if the piano is tuned according to the International Tempered Scale. With this tuning, as stated, the frequency of a^1 is 435 cycles. The frequencies of any other *a*'s or *c*'s may be readily determined by doubling for the octaves immediately above and halving for those below.

These odd figures of the International scale are, however, difficult to hold in mind. Those of the scale in which middle *c* has a frequency of 256 (Fig. 54) are sufficiently close to the ordinary piano tuning for most practical purposes, and are easily remembered because all of the *c* notes are even powers of 2.

This range represented by the piano keyboard extending from frequencies of about 27 to those slightly above 4,000 cycles represents about the range of fundamental frequencies ordinarily employed in music. A principal exception to this statement is to be found in the tones of the lowest organ pipes. In these tones having frequencies as low as 16 cycles per second (C_3) are usually found, and in some the range extends an octave below this to C_4, with a frequency of 8 cycles.

Such an organ pipe has an air column 32 feet long. Its tone, if such it may be called, would be appreciated by most ears as a series of separate pulsations, and the sensation produced would be nearer that of feeling than of hearing. Such a tone would be said, for these ears, to lie outside the "area of audition" or beyond the "threshold of hearing."

Whether properly classifiable as tone or not, these extremely low rates of vibration seem to have a value in organ music as furnishing a sort of foundation effect upon which to build the higher tonal structure.

We must clearly distinguish between pitch and vibrational frequency in speaking, for instance, of the range of frequencies in the sounds of a musical instrument. In all ordinary tones, pitch is determined by the fundamental tone corresponding to the lowest frequency in that tone. Many other higher frequencies may be present in the tone, but they have no effect on the pitch. Thus while the range of pitch represented by the piano keyboard is, with the exceptions just noted, about that ordinarily employed in music, the actual range of frequencies occurring in musical tones will extend much higher.

There has been much conflicting data as to the limits of audible frequencies. This has been caused in part by rather wide differences in the acuity of different ears, in part by the fact that the ability of the ear to sense sounds of very low or very high pitch depends somewhat on the loudness of the sound, and also in part by imperfections in the methods of observation.

The most modern determinations of the range of pitch which a normal ear is capable of sensing, extends from a frequency of about 20 cycles as the lower limit, up to about 20,000 cycles as the upper limit, a range of about ten octaves. Fortunately, however, as will be pointed out in later chapters, in the electrical transmission of sound we are not required to make use of nearly so wide a range.

Loudness.

Loudness is the second one of the three characteristics by which tones are differentiated from each other. The loudness of a tone depends, in general, on the energy of vibration; but it must be remembered that loudness as measured by the ear corresponds to the degree of sensation produced, while the energy of vibration is a physical attribute of the sound waves producing the sensation. The one is psychological, the other physical. It is not to be expected, therefore, that loudness will be exactly proportional to the energy of the sound waves.

Even in the same ear the sensation of loudness is not exactly proportional to the energy of the sound waves throughout the entire range of frequency. For different ears there is a more marked variation. Obviously a given train of sound waves will produce a much louder sensation in a normal ear than in one that is partially deaf. It may be said, however, that for normal ears and throughout the most useful range of pitch, the loudness of a sound may be considered as roughly proportional to the energy of the sound waves.

The energy of a train of sound waves varies as the square of the amplitude[5] and also of the square of the frequency. For tones of the same pitch, therefore, loud-

[5]Square-root-of-the-mean-square value of amplitude, or simply "root-mean-square" value, ordinarily abbreviated r.m.s.

ness will vary roughly as the square of the amplitude of vibration. For tones of different pitch but of the same amplitude, the loudness will vary roughly as the square of the frequency. For tones varying both in frequency and amplitude, the loudness will vary roughly as the square of the product of the two.

If the frequency and the amplitude of a simple tone are each assumed to have a value of unity, the loudness since it is proportional to the product of the squares of the two will have a value which also may be considered as unity. If the frequency is held the same but the amplitude is made twice as great, the loudness will be four times as great. If the frequency is doubled, the amplitude remaining the same, the loudness will be increased fourfold.

In the case of a complex tone, the loudness is the sum of that of the simple components. Contrary to the popular conception, the harmonics of a complex tone may carry a far greater amount of energy than the fundamental wave, and as a result contribute far more to the loudness sensation than the fundamental.

Thus, in the case of a tone consisting merely of a fundamental and its first harmonic, each having unit amplitude and respective frequencies of 1 and 2, the energy contributed by the harmonic would be four times that contributed by the fundamental. The relative loudness of the fundamental, harmonic, and combined tone would be as 1, 4 and 5, respectively.

As will be shown, it is of great importance in the telephonic transmission of speech that the sounds at the receiving instrument shall be loud enough to be heard and interpreted easily.

It is the lower limit of audibility that is of most importance in the design of telephone transmission systems. On the other hand, the received sounds must not be so loud as to cause annoyance or pain, or as to detract from their intelligibility. Between these two extremes there is a wide range of permissible loudness, in which the transmitted speech, unless lacking in other respects, may be easily heard and interpreted.

In varying the loudness, however, it is of paramount importance, as affecting intelligibility, that the *relative amplitudes* of the component frequencies be preserved as far as possible. The variations in amplitude should affect all frequencies in the same proportion. This, however, bears directly on the quality or timbre of sounds, the characteristic next to be considered.

Quality or Timbre.

This is the third distinguishing characteristic of sound. It is a matter of ordinary observation that sounds may be alike in pitch and also in loudness and yet produce quite different effects upon the ear. The differences between the tones of a piano, flute, violin, oboe and the human voice, for instance, all sounded at the same pitch and all with the same loudness, are those of quality alone. They are due to the fact that these are not simple but complex tones. Being of the same pitch, they all have the same fundamental simple harmonic vibration. The difference lies in the number of harmonics present and in their relative intensities.

It is often stated somewhat loosely in text books on sound that quality of tone depends on the wave form. In certain cases this is true, but there are important exceptions. Moreover, it seems to be a rather illogical way of looking at the matter, for, insofar as we understand the workings of the ear, it does not function at all as a *form* analyzer but as a *frequency* analyzer. In our reasoning about sound, we find it convenient to consider wave form, but the ear needs no such roundabout method. It interprets frequencies directly.

We have only to refer again to Figs. 43 and 44 (TELEPHONY of June 14) to see the fallacy of holding wave form responsible for quality. The two resultant curves of those figures are quite different in form, yet, having the same component simple waves, they would produce exactly the same tone. Here the difference in resultant wave form is due solely to the different phase relations of the component simple waves; and experience shows that *changes in phase produce no noticeable change in the character of the sound heard.*

We may conclude, therefore, that quality or timbre is varied by changing the number of components or by changing their relative amplitudes but not by changing their phase relationship.

England's Telephones and Connections

Reflections Concerning Appreciation of Wonders Wrought by Extensions of Communications in Annihilating Distance—News Items of Interest Concerning Great Britain's Telephones and Their Connections With Other Countries

By TELEPHONY'S Special London Correspondent

Most telephone men on this side of the Atlantic have, I suppose, from time to time —when they have time to stop and think about it—yielded to the temptation of wondering whether the public whom they serve, and the press which is the mouthpiece of that public, are properly appreciative of the wonders that are being wrought month by month in the world of communications.

Is there not a tendency for the layman to take things too much for granted? Is it true that the present generation has reached a stage of being so surfeited with extraneous marvels that it has either lost the ability, or else has not the imagination, to work up any enthusiasm over each successive stride that is being made in the direction of annihilating, by the science of telephony, the factors of time and distance in our daily contact and communication with the civilized portions of the globe?

These reflections are prompted by the realization that during the last week or two, Australia, Buenos Aires and Latvia have been added to the already long list of overseas points to and from which the British subscriber can make and receive a telephone call—and the event has, as usual, passed almost without notice. Communication with India by telephone will probably be announced within the next few days and yet, in the words of the old ballad, "nobody seems a penny the worse," or in other words, nobody seems to take much notice.

It is true that every evening newspaper in London made a feature of direct telephone talks with Miss Amy Johnson on the completion of her aeroplane trip but there is still the feeling that the opening of telephone service between England and Australia was sufficiently important in itself, without the added stimulus of the public interest in Amy Johnson's travels to deserve a wider measure of press comment and public appreciation.

On the other hand, it may well be—and this is probably the real truth—that it is our own fault. If we fail to tell the world, loudly and often, of all that we have done, are doing and are planning to do in telephone matters, we ought not to be surprised that the outside world shows little interest, and less appreciation, in our doings and achievements.

From this point of view the Labor Postmaster-General, Mr. Lees-Smith, did well in addressing the Imperial Press Conference here in London this week to claim boldly that during the last three years the Post Office had succeeded in making for Great Britain a "supremely important position" in the world's long distance telephone services.

In the course of this address, he referred

to the Post Office's "modesty" and dislike of publicity and suggested that it was due to these inhibitions that the reputation of the wireless telephone station at Rugby had not suffered in popular esteem, though it is, in fact, the largest and most powerful station of its kind in the world.

He went on to speak of plans for extending wireless telephone service, on the same basis as the existing transatlantic service, to the Dominions and to the other chief countries of the world. Even now, the British telephone subscriber can speak at will with 90 per cent of all the telephone subscribers everywhere in the world. This is certainly coming within measurable sight of the realization of Mr. Gifford's famous slogan.

A Small Island with Big Ideas.

Guernsey, which is shortly to be linked by submarine telephone with the mainland is, telephonically speaking, one of the most highly-developed communities in the world.

The island has 11 telephones to every 100 of the population—a record which, if Guernsey were in a list of countries of the world, would be beaten only by the United States and Canada, and would be far ahead of that of Great Britain, with its modest 3.9 per 100 of population.

Guernsey has attained this high position by a consistent policy of business development and advertisement. The island has managed its own telephones ever since 1897, when, after a prolonged dispute with the Post Office and the National Telephone Co.—culminating in a lawsuit in which Guernsey was the victor—a license was first granted.

During this dispute, in an endeavor to secure a footing in Guernsey, the National Telephone Co., with, it was suggested, the connivance of the Post Office, made a night raid, erected a telephone pole, and strung wires from attachments nailed up to houses without permission.

The constables of the island had the wires cut down, and the company, losing the lawsuit, cleared out, selling its only pole to the state's telephone department for £1. It has carried the state's telephones ever since.

Call Up the Clock.

A clock with a telephone number of its own will shortly be at the service of such telephone subscribers in Paris as want to know the exact time.

The clock, which is now being made, is to be placed in the Paris Observatory and regulated by the staff there. The subscriber who asks for the number will be switched through to the clock direct, and a system of bells inside it will then be set in motion, which will indicate the time.

European Telephone Record.

Three thousand telephones—a record number for any European building—are to be installed in Thames House which, on its completion in 1931, will be the largest and most up-to-date block of office buildings in the Old World.

Thames House stands on a site on the northern bank of the Thames, looking over to the historic Lambeth Palace and only about 300 yards from the House of Parliament—a district which promises to be the "big business" quarter of London in the near future. The present telephone record in this country is held by Imperial Chemical House—its next-door neighbor—with some 2,000 telephones.

How's Baby?

W. L. Kelly, manager of the Australian cricket team, which is now visiting England in an attempt to collect the "Ashes," and seven of his men who come from New South Wales, spoke from London to relatives and friends in Sydney by the newly-opened Australian telephone service. A previous attempt had proved disappointing. Oldfield, the Australian wicket-keeper, got through to his wife and asked eager questions about their baby daughter, who was born just before he left home.

Esperanto in International Tests

A new articulation test for international telephone apparatus which permits of great speed and accuracy in checking has been devised for the International Committee on Long Distance Telephony.

In a test system intended eventually for use throughout the world, it is essential that there should be, as nearly as possible, exact similarity in pronunciation. The British Post Office, which was represented on the International committee, was asked to deal with this difficult point, and decided to use for the purpose the uniformity offered by Esperanto. This marks the first occasion on which the language has been recognized in this country in connection with telephony.

The basis of the system is a list of 4,000 syllables, all capable of being written in Esperanto. Expert Esperantists from each country have been called upon to transcribe these syllables into the exact letters which connote that sound in their particular language.

In making a test, therefore, an operator reads the syllables in a certain section, and these are taken down by a listening operator at the other end of the line. The number of the section is then given, and the receiving operator, on comparing his results with the written official list for his country, can immediately ascertain the percentage of error in the tested instrument.

The British Esperanto Association cooperated with the Post Office.

"For some time past," said the secretary, "a growing need for some common medium of communication in international telephony has been felt. On the Continent commercial houses in different countries use Esperanto extensively. Great Britain is far behind in this respect."

"THERE AIN'T NO BARREL."

By W. M. Boyd,
Vice-President and Treasurer, United Telephone Co., Cleveland, Ohio.

A prominent manager of a telephone company, well known for his prudent expenditure of company money, employed a young man who had, for several years, been in the employ of a telephone company that was thought to be rather extravagant, or loose, in the matter of spending. The manager felt that the young man showed promise and would prove to be a valuable addition to his force, if he had not been inoculated with the "spending germ" during his period of employment with the company that didn't watch its "out-go."

In order to make certain that there would be no room for doubt as to the policy of his company in the matter of spending money, the manager asked the young man to carefully examine each of the offices of the company and report if he found any barrels in the corners. The young man naturally was somewhat surprised at this odd request. He asked (as the manager knew he would): "Why, what would the company be doing with a barrel in the corner of its office?"

The manager then enlightened him:

"The company for which you have worked for several years enjoys good rates and has its plants located in fairly prosperous communities. The fates have been kind to that company, and so far it has never had to worry about money.

"Every one of its offices is equipped with a barrel filled with gold and when an employe wants to spend money for any purpose whatsoever, he goes over to the barrel, dips in his hand and grabs whatever amount he thinks he will need.

"Before hiring you, I wanted to make sure that you had examined our office very carefully and observed that 'There Ain't No Barrel.'"

Oklahoma Telephone Meetings Scheduled for September.

The next series of district telephone meetings in Oklahoma will be held at Garber, Tuesday, September 9; Wynoka, Wednesday, September 10, and Thomas, Friday, September 12.

Three additional district meetings are planned for the month of November. Dates and places for these will be announced later. In order not to interfere with summer vacations the committee decided not to hold meetings during the months of June, July and August.

The spring series was well attended and great interest was taken in discussion.

Members of the Oklahoma Utilities Association are urged to suggest subjects for discussion and to arrange to attend these meetings. W. O. Mills is chairman of the telephone division of the association and H. W. Hubenthal, engineer.

Here and There in Telephone Work

Boost Company Business by Telling Service Ideals.

By Frank H. Williams

It pays the telephone company to have deals because when it does have them, it has a high mark to shoot at. And, of course, when it has a high mark to shoot at, it is certain to do better than when it has no particular goal to reach. And when the telephone company does have ideals, it pays the concern to publicize them.

There are various ways in which it helps a telephone company in getting more business to tell the world about its ideals. It may, perhaps, offer worth-while ideas and suggestions to various telephone companies to learn about some of the ways in which this sort of thing does help. But before going into this phase of the matter, let us look at a typical set of ideals as publicized by the Lincoln Telephone & Telegraph Co., of Lincoln, Neb.

Here are the ideals of service of this company as told to all the people in its territory by means of a half-page advertisement in the local newspapers:

"1. If we cannot say something helpful to or about our fellow employes, we will say nothing at all.

2. We will always remember that our patrons judge our company by what they see and hear of us; we are a part of the company and the most frequent contact between the company and the patron.

3. When serving a patron, we will be alert, courteous and patient. We will accept any complaints pleasantly. We will endeavor to give the expected service as promptly and unfailingly as it is possible.

4. We should know our company's policies and about its service, so that we can answer ordinary questions intelligently, promptly and correctly and furnish information about our business.

5. It is our ambition to render such courteous service that our subscribers will feel that their reporting of irregularities is a matter of cooperation from which we both benefit.

6. We will remember that the position we fill, or the work we do, is an important link in the chain of service that we sell and that our task must be done well to make better satisfied customers.

7. We will not forget that our customers are ultimately our employers and that we will leave no stone unturned to get and keep in good standing with our employer."

This is, unquestionably, a mighty good set of ideals for any telephone company and of itself may offer good ideas and suggestions to the reader of this article. And now for a consideration of the ways and means whereby the telephone company profits from the publication of its ideals in the local newspapers of the territory it serves.

First and foremost in the ways in which the company profits, is the fact that the publication of such ideals shows the public that the company has a real standard of service up to which it is trying to live.

It is still sometimes the case that some folks have the idea that the only thing the telephone company is interested in is giving wrong numbers and making subscribers pay their bills promptly. This is, in fact, one of the hardest things in the world for the telephone company to eradicate from the minds of the general public.

The publication of the company's various ideals of service shows the public completely that there is a real standard of service which the employes are rigorously giving up to; all of which helps to make the public take a more kindly attitude toward the concern. All of which, too, helps to make the public feel that the company is doing its best at all times and is more than willing to meet subscribers half way.

In the second place, the publication of the company's service ideals helps to focus the employes' attention on them, and so helps to make the employes try harder to live up to them.

It is sometimes the case that where the only publicity given to the company's service ideals is in the internal house organ or on the bulletin boards, the employes pay little attention to them. Why should they be very much exercised over the service ideals when the company itself seems to think so little about them?

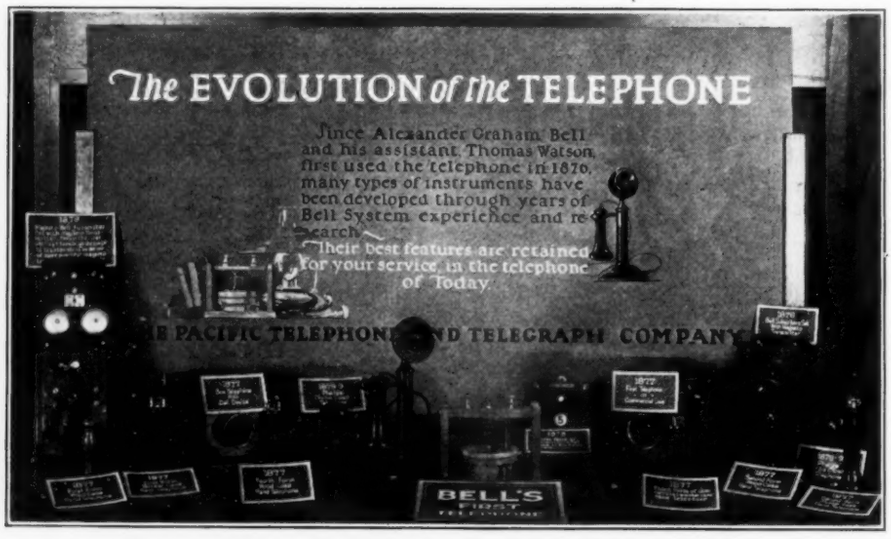
But when the company spends good money for the purpose of telling the whole community about its service ideals by means of advertisements in the papers in the territory served, then every employe is just about sure to sit up and take notice and feel that the whole thing is vital; all of which is a splendid method of getting employes to serve their employers and the public even more satisfactorily than ever before.

In the third place, it is an enterprising, progressive, up-to-date proposition to give publicity to a concern's ideals of service. This present age might, in fact, be called the idealistic age of business. Nowadays it is generally the case that those concerns which have ideals are the ones that step out the fastest and go the farthest on the road to success.

All of the present-day business men are familiar with business ideals by reason of the fact that just about every noon-lunch club and other business men's organization has its own ideals which are lived up to. Consequently, when the telephone company tells the world about its ideals, it is doing the modern thing in the modern manner and so is impressing the public with the fact that it is strictly up and coming all the time. In turn this makes the public feel more kindly toward the company and more like patronizing it because present-day folks like to patronize concerns which are strictly up to the minute, enterprising and successful.

Again, in the fourth place, the publication of service ideals has the important helpfulness of making it possible for the company to check up on itself and see whether or not it is really living up to the various ideals which it has formulated.

Are the employes, for instance, cooper-


The EVOLUTION of the TELEPHONE
Since Alexander Graham Bell and his assistant Thomas Watson first used the telephone in 1870, many types of instruments have been developed through years of Bell System experience and research. Their best features are retained for your service, in the telephone of Today.
BELL'S FIRST

A Window Display Arranged by the Bay Division Commercial Department Around a Collection of Old Telephone Instruments Furnished by the American Telephone & Telegraph Co. The Exhibit Was Shown in Both San Francisco and Oakland.

ating with one another as much as they should—as much as the company's ideal on this point indicates? If not, then the company has a great chance for improvement on this particular ideal and should take steps at once to see that such improvement is inaugurated.

Again, are the employes completely "sold" on the idea that their ultimate and final employers are the subscribers who by their monthly payment of their bills make possible the successful and profitable operation of the concern?

Perhaps there is no one point on which there is such hazy reasoning among average telephone employes as on this. Many telephone company employes fail to see the connection between their own pay envelopes and the payment of bills by subscribers. Consequently, any ideal the telephone company may have on this point may not be as much lived up to by the employes as is desirable, and a checking-up here may be extremely worth while, indeed.

So with all of the various ideals mentioned in the concern's code of service. Frequent checking will be found profitable because, in this way, it is possible to see just what advancement has been made and just what further advancement can be made.

Yes, from every angle this proposition of having service ideals and giving publicity to them is one of the very biggest assets the telephone company can have in stepping out and bettering its service and building more business.

Try it and see!

An Unusual Cable Fault Discovered in Routine Testing.

By T. M. Myers

Wire Chief, Greenwood Telephone Co., Greenwood, S. C.

While making a routine cable test I discovered a freak cable fault, that at first seemed to be a puzzle hard to solve. I am passing it on as it may be of some assistance to others who may wish to make a routine test of their cable.

You will note that cable pairs 22 and 30 were reversed between Moote St. and the end terminal, a fact that we did not know when we first started testing. This was probably caused by several pairs being shot open in the same place and not spliced through straight. As will be seen from the accompanying sketch, they made the trouble look more complicated.

Pair 30 tested one side open at Moote St., and pair 22 tested OK, while at the end terminal both pairs tested open. If you follow the diagram you will note that the red wire of pair 22 will test OK, and the white will test open. Both sides of pair 30 will test open. Also if your test clips are on pair 22, you get your cable splicer's cross on pair 30; and if your clips are on pair 30, you will get his ground on the white wire of pair 22.

This makes it appear that pair 30 is open, one side between the office and Moote St. and both sides between Moote St. and the end terminal; also that pair 22 is open between these two terminals. It also proves that the white wire of pair 30 is crossed with the red wire of pair 22, but as will be seen by the diagram this fault cannot be found with the telafault in the office.

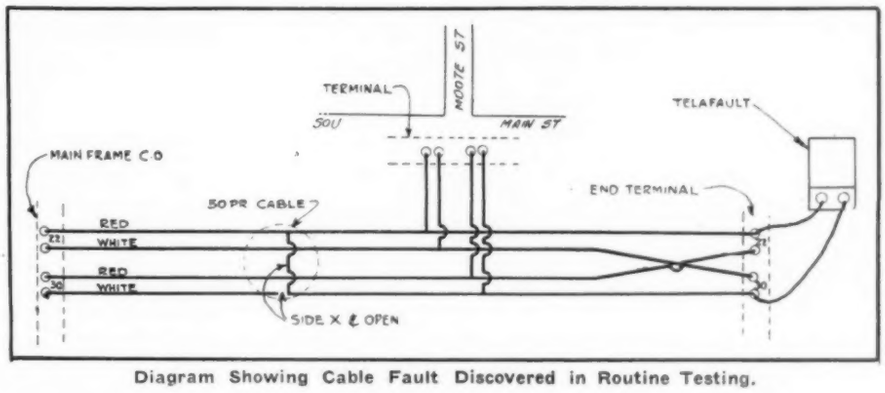


Diagram Showing Cable Fault Discovered in Routine Testing.

This is an unusual case, but I believe it will be useful to study because it carries a real lesson to all testboard men and cable splicers. It proves that a cable pair is not always open even though it may test that way from the office. By making a regular routine test, you can find many open pairs as well as grounds and crosses.

Most Famous Name of New York City's Exchanges.

"Cortlandt," perhaps the most famous of New York City's old telephone central office names, has a new significance. After designating for nearly half a century the succession of central offices in the New York Telephone Co.'s building at 15 Dey Street, this venerable name has been given to the fourth large dial office in the company's headquarters building at 140 West Street which was cut into service in April.

The name, Cortlandt, has been familiar as a central office name since the time there were only about 4,000 telephones in all Lower Manhattan. First applied to the old Cortlandt magneto central office that served the New York of the "Eighties," the name was transferred to the common battery switchboard at the beginning of the present century. Now it is used to designate telephones served by the giant robot exchange.

The first central office to bear the Cortlandt designation was itself the largest central office in the world. It was opened October 28, 1888, at 18 Cortlandt Street in the first building owned by the company. This switchboard, the marvel of telephone engineers of the period, was built to serve about 5,000 telephones. On its completion, five of the old central offices—Pearl, New, John, Nassau, and Murray—were retired and their telephones served by the new board. In 1892, additions were made to the magneto board; and in 1901 it was replaced by a common battery board, located in the same building, which, having been greatly enlarged, now is known as 15 Dey Street.

In the beginning, the Cortlandt switchboard served about 4,000 telephones—the total in the entire territory from the Battery to Chambers Street, and from the East to the North River. In this same area there are now about 168,000 telephones. With the growth in the number of telephones, the geographical territory served by Cortlandt was decreased steadily. The new Cortlandt central office now serves telephones located roughly in the area bounded by Greenwich, Vesey, Nassau, and Liberty Streets, together with all telephones in the city administration offices in City Hall Park.

Only 700 Words Used in 95 Per Cent of Telephone Talks.

Analysis of a representative cross-section of the 80,000,000 telephone conversations carried on daily over the Bell system in the United States has disclosed that "50 words account for 60 per cent of the total words in these conversations and 700 words account for 95 per cent." The results of a study of the words used in 500 telephone conversations are reported by W. P. Banning, assistant vice-president of the American Telephone & Telegraph Co. in the current issue of The Bell Telephone Quarterly.

"In 500 conversations in which about 80,000 words were noted, only 2,200, or less than 3 per cent, were different words," reports Mr. Banning. "At each end of the telephone circuit over which each conversation is held, some one is listening to human speech, and each of these conversations—except where the dial telephone is used—is prefaced by a conversation with a telephone operator.

Nearly 200,000,000 times a day, therefore, the vibrating diaphragm of a telephone receiver is reproducing some one's enunciation, inflection, tone and mannerisms of speech. The effort to improve telephone service is reciprocal cooperation, for better service means better speech."

The Financial Side of Companies

Miscellaneous Items of Interest Regarding Financial Matters of Telephone Companies—New Securities Issued During Past Month—Figures From the Monthly Reports of Larger Companies to Interstate Commerce Commission

Report of Keystone Telephone Co. Shows Increased Earnings.

The report of Keystone Telephone Co. of Philadelphia, Pa., and the Eastern Telephone & Telegraph Co. for the year ended December 31, 1929, shows consolidated net profit of $231,883 after interest, depreciation, federal taxes, etc., equivalent to $5.79 a share of 40,000 no-par shares of $4 cumulative preference stock. This compares with $203,072, or $5.08 a share, in 1928. All of the common stock is owned by Telephone Securities, Inc.

The consolidated statement for the year 1929, compares as follows:

	1929	1928
Gross earn.	$2,193,360	$2,152,563
Net aft. ord. tax...	1,095,122	1,046,754
Surp. aft. chgs. ..	231,883	203,072
Pfd. divs.	160,000	159,954
Surplus	71,883	43,127

Holders of common and preferred stock of the Keystone company have approved a change in the capital stock of the company to 40,000 shares of no-par preference stock; 160,000 shares of no-par series preference stock and 50,000 shares of $50 par common stock, from 200,000 shares of no-par preference stock and 50,000 shares of $5 par common.

Approval has also been voted to a proposal to increase the indebtedness of the corporation by issuing debenture notes in a maximum amount of $5,000,000 upon such terms and conditions as the board of directors may authorize.

Class A Companies' Reports for March Show Slight Increase.

Compilations from reports of revenues and expenses for March, 1930, of 106 class A telephone companies, as submitted to the Interstate Commerce Commission, show gross operating revenues of $99,138,038 as compared with $94,278,450 for the corresponding month of 1929, showing an increase of 5.2 per cent for the current year.

Operating expenses for March, 1930, were $67,819,531, which is an increase of 7 per cent over 1929. The operating income for the same month was $22,672,677, as compared to $22,680,541 of 1929, a decrease of $7,864.

Operating revenues for the three months ending with March, 1930, were $291,770,746, as compared with $278,104,069 for the corresponding period in 1929, showing an increase of 4.9 per cent for 1930. Operating expenses for the same period were $198,393,675 and $183,602,524, respectively, showing an increase of 8.1 per cent for 1930. The operating income for the three months of 1930 amounted to $67,403,347, as compared with $70,025,226 for the same period of 1929, a decrease of 3.7 per cent for 1930.

The companies, which include those having annual operating revenues over $250,000, had 17,018,588 telephones in service at the end of March, 1930, an increase of 4.8 per cent over that of 1929, when there were 16,244,397. Complete data for the Southeast Missouri Telephone Co. were not available for inclusion in this report.

Meadville (Pa.) Telephone Co. Reports 1929 Its Best Year.

The annual report of the Meadville Telephone Co., Meadville, Pa., shows results of operations for the year 1929 to be the best since its organization. The net income increase over 1928 was $4,989.49, due principally to the extraordinary net growth of 236 stations and the economical operation of the property.

On December 31, 1929, when the company's report was made up, 4,734 stations were in service, of which 65 were connecting stations. During March an employes' contest for new subscribers was conducted, which was largely responsible for the unusual gain of 236 stations.

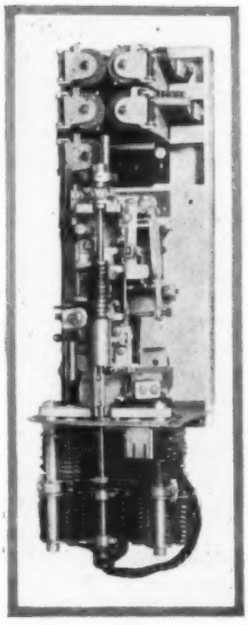
During the year 1929, 2,381 poles, 1,021 crossarms, and 237 miles of new copper

Items.	Month of March				Three months ended with March			
	1930.	1929.	Increase or decrease (*). Amount.	Ratio, Pct.	1930.	1929.	Increase or decrease (*). Amount.	Ratio, Pct.
Number of company stations in service at end of month	17,018,588	16,244,397	774,191	4.8	.....	.....	.....	....
Revenues:								
Subscribers' station revenues	$60,255,769	$56,606,492	$3,649,277	6.4	$178,687,834	$168,636,453	$ 10,051,381	6.0
Public pay station revenues	4,342,588	4,016,971	325,617	8.1	12,628,001	11,588,516	1,039,485	9.0
Miscellaneous exchange service revenues	905,906	760,413	145,493	19.1	2,692,782	2,279,694	413,088	18.1
Message tolls	26,996,314	27,040,355	*44,041	*0.2	77,827,934	78,199,725	*371,791	*0.5
Miscellaneous toll line revenues	9,936,149	3,477,909	458,240	13.2	11,891,684	10,203,648	1,688,036	16.5
Sundry miscellaneous revenues	2,664,852	2,359,809	305,043	12.9	7,931,336	7,088,398	842,938	11.9
Licensee revenue—Cr.	1,266,000	1,207,384	58,616	4.9	3,812,900	3,611,585	201,315	5.6
Licensee revenue—Dr.	1,229,540	1,190,883	38,657	3.2	3,701,725	3,503,950	197,775	5.6
Telephone operating revenues	$99,138,038	$94,278,450	$4,859,588	5.2	$291,770,746	$278,104,069	$ 13,666,677	4.9
Expenses:								
Depreciation of plant and equipment	$15,594,222	$14,412,251	$1,181,971	8.2	$ 46,499,888	$ 42,691,483	$ 3,808,405	8.9
All other maintenance	16,783,956	15,513,583	1,270,373	8.2	48,010,455	43,695,804	4,314,651	9.9
Traffic expenses	20,047,109	19,511,228	535,881	2.7	59,036,153	56,675,907	2,360,246	4.2
Commercial expenses	9,469,691	8,780,604	689,087	7.8	27,858,794	25,628,478	2,230,316	8.7
General and miscellaneous expenses	5,924,553	5,192,281	732,272	14.1	16,988,385	14,910,852	2,077,533	13.9
Telephone operating expenses	$67,819,531	$63,409,947	$4,409,584	7.0	$198,393,675	$183,602,524	$ 14,791,151	8.1
Net telephone operating revenues	$31,318,507	$30,868,503	$ 450,004	1.5	$ 93,377,071	$ 94,501,545	$ 1,124,474	*1.2
Other operating revenues	60,388	70,781	*10,393	....	174,846	238,821	*63,975	....
Other operating expenses	45,410	61,638	*16,228	....	131,621	199,779	*68,158	....
Uncollectible operating revenues	740,014	587,220	152,794	26.0	2,196,208	1,730,779	465,429	26.9
Operating income before deducting taxes	30,593,471	30,290,426	303,045	1.0	91,224,088	92,809,808	*1,585,720	*1.7
Taxes assignable to operations	7,920,794	7,609,885	310,909	4.1	23,820,741	22,784,582	1,036,159	4.6
Operating income	$22,672,677	$22,680,541	*$ 7,864	....	$ 67,403,347	$ 70,025,226	*$ 2,621,879	*3.7
Ratio of expenses to revenues, per cent	68.41	67.26	1.15	....	68.00	66.02	7.98	....

Comparative Statistics of 106 Class A Companies for March, Compiled from Reports to Interstate Commerce Commission.

# of Strowger Versatility

HE various switching units which compose the Strowger System, are highly flexible in their application. No matow peculiar the traffic conditions of any particular exchange may be, or how large or how small the number of lines e served, standard Strowger switches invariably satisfy y requirement with complete success.



flexibility is one of the basic and exclusive advantages of trowger System. The familiar Strowger selector serves as cellent example, for this switch represents the fundamental n why a single standard type of equipment is equally table to the service needs of a rural exchange and those e world's greatest metropolis.

successful designing and perfecting of such simple and ed switching units as the selector—yet units which function rfectly in any telephonic network, regardless of its comty or peculiarities—are the result of the long experience h the Strowger organization has had in the field of autoc telephony—an experience for which there is no substitute.

[75% *of the world's automatic telephones are working on the Strowger System*]

Automatic Electric Inc.

Manufacturers of

STROWGER AUTOMATIC DIAL TELEPHONE AND SIGNALING SYSTEMS

Factory and General Offices: 1033 West Van Buren Street, Chicago, U. S. A.

Sales and Service Offices in All Principal Cities

GENERAL EXPORT DISTRIBUTORS

Automatic Electric Company, Ltd., Chicago

. . . Independent Sales and Engineering Co., Ltd., Vancouver

. . . Automatic Telephones, Ltd., Sydney

. . . Automatic Telephones Ltd. of Japan, Tokyo

ASSOCIATED COMPANIES

American Electric Company, Inc. . . . Chicago

International Automatic Telephone Co., Ltd., London

Automatic Telephone Manufacturing Co., Ltd., Liverpool

The New Antwerp Telephone and Electrical Works . . . . . Antwerp

UTOMATIC

STEMS

When writing to Automatic Electric Inc., please mention TELEPHONY.

wire were placed in the plant, the gross additions to plant and equipment amounting to $74,015.76. The retirements amounted to $64,425.54. The net additions were $9,590.22, making the total plant and equipment at the end of the year $857,876.06.

The exchange service revenues for the year amounted to $156,741.69, an increase of $8,080.64 over 1928. This was $34.128 per telephone, an increase of 16.8 cents per telephone over 1928.

A total of 202,283 outward toll messages, amounting to $80,786.40, were handled during 1929. From this toll business the company realized as its share a revenue of $37,396.97.

The total operating revenues for the year were $198,562.07, an increase of $11,002.17 or 5.87 per cent over the previous year. Current maintenance for 1929 amounted to $32,423.05 or $7.056 per telephone, compared with $6.204 per telephone for 1928.

A charge of $28,382.73 was made to the operating expense for depreciation, an increase of $653.39 over the previous year. There was an increase of $4,357.02 in the reserve for depreciation at the end of the year.

Due to the excessive drain on the reserve caused by the removal in the past few years of duplicate plant purchased from the Bell Telephone Co. of Pa. on August 1, the directors thought it advisable to appropriate from surplus to increase this reserve. A further increase of $42,545.36 was, therefore, made in 1929, which, at the end of the year, amounted to a total of $69,702.70 or 8.12 per cent of the plant and equipment in service on that date.

The traffic expense amounted to $38,506.88, an increase of $2,037.48 over the previous year. The net earnings available for interest and dividends in 1929 were $65,951.76, an increase of $4,957.57 over 1928. The interest on funded debt was earned 3.1 times, and the dividends on the first preferred stock were earned 2.2 times.

The average number of employes for the year was 83, an increase of seven over 1928, and the annual payroll $85,275.64. On January 1, 1929, the company and employes entered into a mutual arrangement for group life insurance and a policy for $2,000 was issued on the life of each employe.

Nebraska Company Has Good Surplus After Paying Dividends.

The annual report of the Cedar County Independent Telephone Co., filed with the Nebraska State Railway Commission, shows that the corporation earned nearly three times its dividend requirements in 1929. The company is headed by B. Ready, president, with Otto Enarson as manager. The company has fixed investments of $70,078 and total assets of $79,477. Of this, $31,910 represents an invested surplus and $23,910 is in the depreciation reserve.

The company has only $19,350 common stock outstanding. On this it paid $1,890 dividends and passed $3,447 to profit and loss. It has an exchange at Hartington, with 831 stations operated.

Exchange revenues for the year total $14,276; toll revenues were $3,926, and miscellaneous $532, making a total of $18,734. Total expenses were $12,391, made up of $6,137.40 for maintenance and depreciation, $3,667.04 for traffic and $2,586.75 for commercial.

The telephone operating income was $6,342.79 and the total operating income $6,622.79, of which $1,051.60 was paid for taxes, $234.42 for miscellaneous expenses, and $1,890 for dividends, leaving $3,446.77 for profit and loss.

1929 Expenditures of Northwestern Bell of Employes' Benefit.

A report recently issued by the Northwestern Bell Telephone Co. by the employes' benefit committee shows that during 1929 a total of $231,794 was expended from the fund, an increase of nearly $12,000 over 1928.

Of this sum, $121,000 was for sick benefits, $42,634 for service pensions and $3,000 for disability and after-death payments; accident disability expenses, $17,000; accident disability benefits, $20,000; death benefits, sickness, $18,000, and accident, $3,000, round numbers being given.

The average number of employes on the payroll was 12,729, of whom 7,449 were eligible to sick benefits, having completed more than two years of service. Sickness cases of more than a week numbered 1,244, a decrease in number but an increase in days off. Deaths were 33 in number, an increase of 12. Accident cases were 618, which is 80 more than for 1928, of which 148 were for more than one day. No deaths on account of accidents were reported, while the year before there were six. There were 64 former employers on the pension list when the year began, four died and ten were added.

I. T. & T. First Quarter Earnings Show Large Drop.

The International Telephone & Telegraph Corp. reports for the first quarter of 1930 a net income of $3,353,739, equal to 57 cents a share earned on 5,871,739 shares of common stock, against $4,187,031, or 82⅔ cents a share on the equivalent of 5,011,386 common shares, earned in the first quarter of 1929.

Earnings for the first quarter last year equaled $2.51 a share on 1,670,462 capital shares of $100 par value, which later were split up on a three-for-one basis.

The decrease of $833,293 in net income was due almost entirely to decreases in the net income of the Postal Telegraph, Commercial Cables and All-America Cables, the report said. The revenues of these companies have been adversely affected by the reduction in general business activity, particularly in this country. The earnings of the majority of the system telephone operating and manufacturing companies compare favorably with their earnings for the previous year.

Southern New England Telephone Co. Issues Debentures.

Offering of $10,000,000 Southern New England Telephone Co. 5 per cent debentures, due in 1970, was made last month at 102½ to yield 4.85 per cent by Charles W. Scranton & Co., Putnam & Co., Edward M. Bradley & Co., Inc., Stevenson, Gregory & Co., Roy T. Barnes & Co., Hincks Bros. & Co., and R. F. Griggs Co. All these firms are Connecticut houses. The debentures are callable as a whole, but not in part, upon 60 days' notice at 110 on or before June 1, 1967, and thereafter at par.

The proceeds will be used to pay for extensions and additions recently made to the property of the company which owns and operates substantially all of the telephone exchanges in Connecticut and serves a population estimated at 1,685,000.

Under the provisions of the indenture, the debentures are to be secured ratably with any mortgage indebtedness which may be created after their issuance. The company further convenants that as long as the debentures are outstanding, it will not create any indebtedness which would bring its aggregate funded debt to an amount in excess of 50 per cent of the actual cost of its then existing property, unless such excess amount is expressly subordinated to the indebtedness created by this issue.

New Issue of Bonds of Illinois Commercial Telephone Co.

New financing for the Illinois Commercial Telephone Co. was announced late last month through offering of an issue of $3,500,000 first mortgage 5 per cent bonds, Series B, due on March 1, 1960. The bonds were offered by a syndicate composed of Paine, Webber & Co., Bonbright & Co., Inc., and Mitchum, Tully & Co. The bonds, which have been authorized by the Illinois Commerce Commission, were priced at 95½, to yield about 5.30 per cent.

Net earnings of the company for the year ended on February 28, 1930, after all charges, amounted to $750,534, or more than 2.6 times the annual interest requirements on the funded debt.

The gross earnings are given as $2,254,367; operating expenses, maintenance and taxes, $1,317,728; and net earnings before depreciation $936,639. The depreciation provision for the year amounted to $186,106. Annual interest requirements of entire funded debt including this issue amount to $287,500 and the balance for reserves, federal taxes and dividends is $649,139.

The company operates 81,988 stations from 189 exchanges serving 401 communi-

ties in the southern, southeastern and northern parts of Illinois. It is part of the system of the Associated Telephone Utilities Co., of Chicago.

The proceeds of the sale of the bonds will be used to retire bonds and other obligations of properties recently acquired, to reimburse the company for expenditures for additions to property and for other corporate purposes.

Report Shows Dividends Omitted, but Surplus Increased.

The annual report of the Odell Independent Telephone Co., filed with the Nebraska State Railway Commission, shows fixed investments of $34.772.98 and total assets of $37,516.42. F. J. Bures is president, and Arthur Balderson, manager. The company has stock outstanding of $12,200, payables of $5,500, a depreciation reserve of $15,157 and a surplus of $1,685. Other figures are:

Exchange revenues, $6,422.17; toll, $608.97; total revenues, $7,031.14; maintenance expenses, $4,052.64; depreciation (red), $852.72; total for two items, $3,-199.92; traffic, $1,541.76; general, $725.52. Total expenses, $5,467.20; operating income, $1,563.94.

Taxes paid totaled $140, and interest, $260, and as no dividends were paid, there was added to surplus $1,163.94. The company operates 85 stations in the town of Odell and 342 in the rural districts around it.

Growth and Progress of Home Company, Fort Wayne, Ind.

The 34th year of the corporate life of the Home Telephone & Telegraph Co., Fort Wayne, Ind., was one in which excellent progress was made in all departments of the entire system, according to the report of President Frank E. Bohn, to the stockholders at the recent annual meeting.

At the close of the year there was a total of 37,731 stations, an increase due to growth and purchase of 3,810. The increase in stations, due to growth was 2,459, the largest in the history of the company, with the exception of the years 1924 and 1925, which two years showed figures slightly higher, due to a large waiting list accumulated in the past because of a lack of facilities.

Fort Wayne added 2,388 stations and the outside exchanges, 71 stations during the year. The Home company added by purchase the exchange at Monroeville to its list of outlying exchanges, approval having been obtained from the Indiana Public Service Commission. This added 590 stations to the system.

Early in 1929 the exchanges at Albion and Kimmell, which were operated as the Noble County Telephone Co., the company having purchased all of the stock of that company in 1928, were taken into the Home system as physical property and the Noble County Telephone Co. dissolved. These two exchanges had in service at the end of the year, 764 stations.

Mr. Bohn revealed that the fundamental plan made in 1921 estimated 33,856 telephones for Fort Wayne at the end of the year 1929, whereas the actual number in service was 34,096, or 240 telephones more than the forecast as a result of the commercial survey made in 1921.

One of the outstanding achievements of the year was the installation of 359 semi-public pay stations in drug stores, barber shops and confectioneries in Fort Wayne. In some cases these pay stations take the place of telephones with unlimited service, and in other cases they were installed as an additional service. A gain of 14 private branch exchange systems also was made.

Continued progress has been made in the time for the clearance of trouble and in the installation time for moves, changes and new installations.

The long distance service continues to grow, according to the report. The gross amount of tolls increased 24 per cent over the preceding year. Great strides also were made in the improvement of the long distance service, both in the transmission and the completion time.

The Home company's toll lines have been kept up to a high state of efficency throughout the entire system. Service to the nearby exchanges, which have been purchased during the past few years, has been greatly improved, due to the improved local facilities and improved and adequate toll circuits. A total of 119 toll circuits radiate from the Fort Wayne exchange in all directions. Of these, 61 are Home company circuits, 30 are Indiana Bell circuits, and 28 are A. T. & T. circuits.

Approximately 2.8 trench miles of underground conduits were placed during the year. Aerial cable to replace open wire was placed within all the newer additions to the city as well as in some of the older and more rapidly-developing areas. A number of the outside exchanges were completely rehabilitated. A private automatic exchange for the Pennsylvania Railroad Co., consisting of 150 lines with two-position attendant's cabinet, was installed.

With the cable work accomplished in 1929, there is now in the entire system of the company approximately 71 per cent of the exchange wire mileage in underground cable and 19 per cent in aerial cable. In Fort Wayne there is 76 per cent in underground and 20.5 per cent in aerial cable.

Additional central office equipment was installed at both the Anthony and Harrison offices of the company to take care of growth.

Mr. Bohn had this to say concerning the employes of the company:

"Too much cannot be said of the interest and loyalty of the men and women who go to make up the personnel of this company. They have individually and collectively shown a keen interest in their work, taken advantage of all opportunities given them for becoming better acquainted with their duties and for learning more of the telephone industry as a whole, as well as the policies, problems, aims and ambitions of the Home Telephone & Telegraph Co.

The morale of the forces is exceptionally high, the spirit of cooperation most noticeable; the courtesy extended to the subscribers and general public in an effort to satisfy and please, is a thing that should not go unmentioned. Our strength is in our organization, the experience and training of its personnel, its personal acquaintanceship with the public, and that loyalty, courtesy, interest and cooperation of which I speak."

Expenditure of Northwestern Bell Company for This Year.

In the letters enclosing the first quarterly dividends for the year to stockholders of the Northwestern Bell Telephone Co., President W. B. Belt sent a brief statement showing that the company budget for the year included the expenditure of $15,500,000 for plant and equipment, divided as follows:

Lands and buildings, $1,500,000; central office equipment, $3.200,000; station equipment, $3,000,000; exchange lines, $3,300,-000; toll lines, $4,400,000. These will be well distributed over the five states in which it operates, Nebraska, the Dakotas, Iowa and Minnesota.

During the year, he estimated, plant and equipment that had an original cost of about six million dollars will be retired from service because it has reached the end of useful life. Mr. Belt also called attention to the extension of the Bell system of long distance lines, principally cable, into Iowa.

A cable reaching from New York through Chicago has been extended as far as Davenport and is being extended to Omaha by way of Iowa City and Des Moines. Other big cable installations, part of it underground are being made in the Iowa district.

Net Operating Revenue of California Company Increases.

The Kern Mutual Telephone Co,. operating in Taft, reports to the California Railroad Commission its 1929 operating revenue at $130,952.82, as compared with $112,961.82 for 1928.

The operating expenses, excluding taxes for 1929, are reported at $83,924.42, and for 1928 at $76,080.92, leaving net operating revenue of $47,028.40 for 1929, and $36,880.90 for 1928. During 1929 taxes charged to operation amounted to $10,-777.41, and for 1928 to $11,056.71. Deducting the taxes leaves operating income

of $36,250.99 for 1929, and $25,824.19 for 1928.

Adding to the operating income, the non-operating income of the company and deducting non-collectible revenue and rents, results in a gross corporate income (which represents the amount available for interest, amortization of debt discount and expenses, other fixed charges, non-operating expenses, dividends and surplus), of $38,514.72 for 1929, and $23,096.66 for 1928.

Santa Barbara (Calif.) Company Shows 1929 Income Increase.

The Santa Barbara Telephone Co., operating in Santa Barbara, reported to the California Railroad Commission its 1929 operating revenue at $600,671.99, as compared with $514,426.92 for 1928. The operating expenses, excluding taxes for 1929, are reported at $378,819.43, and for 1928 at $370,563.91, leaving net operating revenue of $221,852.56 for 1929, and $143,-863.01 for 1928.

During 1929 taxes charged to operation amounted to $59,927.20, and for 1928 to $39,742.60. Deducting the taxes leaves operating income of $171,925.36 for 1929, and $104,120.41 for 1928. Adding to the operating income, the non-operating income of the company and deducting non-collectible revenue and rents, results in a gross corporate income, (which represents the amount available for interest, amortization of debt discount and expense, other fixed charges, non-operating expenses, dividends and surplus), of $161,271.39 for 1929, and $110,825.90 for 1928.

Manitoba (Canada) Telephone System Revenues Increase.

According to the report issued by the commissioner, the revenue of the Manitoba Telephone System for March, 1930, totalled $319,319, as against $310,436 for February and $318,303.34 for March last year. The balance of the net earnings, after allowing $6,000 for amortization of intangible capital, was $14,403, an increase of more than $4,000 over the earnings of the previous month. Operation and maintenance expenses were $147,540 as compared with $143,632 for February and $137,695 for March, 1929.

Increased 1929 Income Reported by California Company.

The Home Telephone & Telegraph Co of Pasadena recently reported to the California commission its 1929 operating revenue at $1,411,545.28, as compared with $1,280,627.69 for 1928. The operating expenses, excluding taxes for 1929, are reported at $1,086,070.88, and for 1928 at $1,042,817.25, leaving a net operating revenue of $325,474.40 for 1929, and $237,-810.44 for 1928. During 1929, taxes charged to operation amounted to $94,701.-99, and for 1928 to $83,529.47.

Deducting the taxes leaves operating income of $230,772.41 for 1929, and $154,-280.97 for 1928. Adding to the operating income, the non-operating income of the company and deducting non-collectible revenue and rents, result in a gross corporate income (which represents the amount available for interest, amortization of debt discount and expense, other fixed charges, non-operating expenses, dividends and surplus), of $187,775.95 for 1929, and $123,-385.28 for 1928.

Company at Pawnee City, Neb., Reports Good Year.

The annual report of the Pawnee Telephone Co. of Pawnee City filed with the Nebraska State Railway Commission, gives the following figures for the year ending December 31, 1929:

Fixed investment	$89,468.00
Total assets	97,361.00
Common stock	66,750.00
Payables	16,000.00
Depreciation reserve	41,446.00
Surplus deficit	25,758.00
Exchange revenues	18,158.75
Toll revenues	3,990.30
Miscellaneous revenues	674.07
Total revenues	$22,823.12
Maintenance	4,474.41
Depreciation	3,325.94
Total for maintenance and depreciation	$ 7,800.35
Traffic expense	2,937.96
Commercial expense	5,709.46
Total expense	$16,447.77
Operating income	6,375.35
Taxes paid	1,080.00
Interest paid	1,280.04
Dividends paid	3,333.50
Passed to surplus	501.81

W. M. Thompson is president and George E. Becker secretary and manager of the company, which operates 772 stations at Pawnee City.

I. T. & T. 1929 Report Shows Net Income Increase.

The annual report of the International Telephone & Telegraph Corp. for 1929 shows a net income of $17,732,125, equal to $3.03 a share earned on 5,858,984 common shares outstanding at the end of the year, against $14,596,357, or $3.42 a share earned on the equivalent of 4,268,355 common shares earned in 1928. There were actually 1,422,785 shares of $100 par value outstanding at December 31, 1928, which later were split up on a three-for-one basis.

Total revenue from telephone, telegraph and cable operating revenues and gross profit on sales was $89,291,336 in 1929, against $71,444,764 in 1928. The amounts for both years do not include the Compania Telefonica Nacional de Espana, since the accounts of that company are not consolidated. Total earnings for 1929 were $100,340,590, against $81,234,824, the previous year.

Net earnings after expenses, taxes and depreciation were $27,431,038, against $23,-053,829 in 1928. The depreciation reserves in 1929 were $7,458,443. Net income before interest on debenture basis was $20,-909,672, against $16,171,337 in 1928. Earned surplus at December 31, 1929, after dividends and miscellaneous adjustments amounted to $28,084,707, against $21,471,-677 at December 31, 1928, and $15,636,018 at December 31, 1927. Common dividends to 1929 totaled $10,853,419, against $6,-712,740 the year before.

The plant and property account increased more than $88,000,000, or 42 per cent in 1929, largely as a result of the acquisition of new properties, amounting to $297,693,-106 at December 31, 1929, against $209,-339,120 the year before. Total assets rose from $389,914,333 to $535,203,589. Current assets were $113,385,499, against $103,-683,850, and current liabilities $54,035,237, against $43,056,395.

The balance sheet carried an item of deferred charges which has not previously appeared on the company's reports, namely, research and development expense, $3,995,-073. These expenditures, which have been deferred to become charges against future operations, have previously been classified under prepaid accounts and other deferred charges and amounted to $1,334,034 at the end of 1928.

Income of Company Shows Decrease Over 1928 Income.

The Corona Home Telephone & Telegraph Co., operating in Corona, reported to the California Railroad Commission its 1929 operating revenue at $32,718.83, as compared with $28,026.65 for 1928.

The operating expenses, excluding taxes for 1929, are reported at $25,314.73, and for 1928 at $17,446.49, leaving a net operating revenue of $7,404.10 for 1929, and $10,580.16 for 1928. During 1929, taxes charged to operation amounted to $1,551.66, and for 1928 to $2,620.00. Deducting the taxes leaves an operating income of $5,-852.44 for 1929, and $7,960.16 for 1928.

Adding to the operating income, the non-operating income of the company and deducting non-collectible revenue and rents, results in a gross corporate income (which represents the amount available for interest, amortization of debt discount and expense, other fixed charges, non-operating expenses, dividends and surplus), of $5,-875.04 for 1929, and $8,321.75 for 1928.

Farmers' Organization Has Small Surplus After Dividends.

The annual report of the Hamilton County Farmers' Telephone Association, made to the Nebraska State Railway Commission, shows that although it had total revenues of $52,000, rates are so adjusted that its profit and loss account for 1929

shows only $1,174 passed to surplus. Fixed investments of the company total $170,435 and assets $183,437.

The company has preferred stock of $7,000 outstanding, and common stock totaling $48,570. The depreciation reserve is $22,298 and the surplus $88,201. Exchange revenues were $46,684; toll, $4,940; miscellaneous, $374; a total of $51,998.

Total expenses were $48,650, divided as follows: Maintenance and depreciation, $21,000; traffic, $16,701 and commercial $10,949. The total operating income was $3,561, out of which were paid $1,968 taxes and $420 dividends on the preferred stock. The remainder, $1,174, was passed to surplus.

The company operates a total of 3,123 stations, at nine exchanges, as follows: Aurora, 1,268; Doniphan, 229; Giltner, 364; Hampton, 289; Hordville, 107; Marquette, 368; Phillips, 233; Stockham, 130; Trumbull, 135.

Increased 1929 Income Reported by California Company.

The Southern California Telephone Co., operating in Los Angeles and vicinity, reported to the California Railroad Commission its 1929 operating revenue at $25,856,670.07, as compared with $23,356,353.47 for 1928. The operating expenses, excluding taxes for 1929, are reported at $15,375,803.38, and for 1928 at $13,913,147.26, leaving net operating revenue of $10,480,866.69 for 1929, and $9,443,206.21 for 1928.

During 1929, taxes charged to operation amounted to $2,607,032.75, and for 1928 to $2,193,353.32. Deducting the taxes leaves operating income of $7,873,833.94 for 1929, and $7,249,852.89 for 1928. Adding to the operating income, the non-operating income of the company and deducting non-collectible revenue and rents, results in a gross corporate income (which represents the amount available for interest, amortization of debt discount and expense, other fixed charges, non-operating expenses, dividends and surplus), of $7,455,313.08 for 1929, and $6,926,786.50 in 1928.

New Issue of Bonds of Bell Telephone Co. of Canada.

Offering of a new issue of $7,500,000 first mortgage 5 per cent gold bonds, Series C, of the Bell Telephone Co. of Canada, was made early this month by a syndicate composed of Lee, Higginson & Co., Bank of Montreal, and Harris Trust & Savings Bank. The bonds, dated May 1, 1930, and maturing on May 1, 1960, were priced at 101½ and accrued interest, to yield 4.90 per cent. The authorized issue is limited so that the amount of the first mortgage bonds outstanding shall never exceed twice the amount of paid-up capital stock.

The Bell company owns and operates the principal telephone system in the provinces of Quebec and Ontario, Canada, serving a territory of 833,000 square miles with 6,000,000 population, including Montreal and Toronto, the largest cities in Canada.

The average revenue for the last five years ended December 31, 1929, were $33,622,005, and net earnings have averaged 3.42 times bonds interest charges. Definitive bonds are expected to be ready for delivery on or about June 20, 1930.

Current Price Quotations on Listed Telephone Stocks.

	June 20, 1930 High.	Low.	Last.
American Telephone & Telegraph Co.	211	204¾	206⅜
American Telephone & Telegraph Co. rights	18	17	17¼
Associated Telephone & Telegraph Co., A	63	62½	63
Associated Telephone & Telegraph Co., pfd. (6)	94	94	94
Associated Telephone Utilities Co.	22	21	21¾
Cincinnati & Suburban Bell Telephone Co.	92½	92½	92½
Community Telephone Co.	20	20	20
Chesapeake & Potomac Telephone Co., pfd.	118¼	118¼	118¼
Diversified Investments, Inc.	51	51	51
Empire Public Service Co.	19	17½	19
International Telephone & Telegraph Corp.	46¼	42⅛	43⅜
Mid-west States Utilities Co.	24⅜	24⅜	24⅜
New York Telephone Co., (6½), pfd.	116	116	116
New England Telephone & Telegraph Co.	147½	147½	147½
Ohio Bell Telephone Co., pfd.	115	115	115
Pacific Telephone & Telegraph Co., com.	131⅛	130	131
Western Power, Light & Telephone Co.	26⅛	25¾	26

OVER THE COUNTER QUOTATIONS.

	June19. Bid.	June18. Asked.	Bid.
Associated Telephone Utilities Co., $6, pfd.	84	.....	.....
Associated Telephone Utilities Co., $7, pfd.	93	.....	.....
Bell Telephone Co. of Canada	146	149	148
Bell Telephone Co. of Pennsylvania	115	118	115
Cuban Telephone Co., 7, pfd.	97	102	97
Diversified Investments, Inc., part. pfd.	66½	68⅛	.....
Lincoln Telephone & Telegraph Co.	120	.....	120
Mountain States Telephone & Telegraph Co.	142	148	142
National Telephone & Telegraph Corp., pfd.	103	105	.....
New York Telephone Co., pfd.	20	24	20
Northwestern Bell Telephone Co., pfd.	107½	109	107½
Pacific Telephone & Telegraph Co., pfd.	128	.....	128½
Peninsular Telephone Co.	24	26	25
Peninsular Telephone Co., pfd.	106	.....	106
Porto Rico Telephone Co.	85	.....	85
Porto Rico Telephone Co., pfd.	100	.....	100
Rochester Telephone Corp., 1st pfd.	106	.....	107
Southern New England Telephone Co.	171	177	171
Southwestern Bell Telephone Co., pfd.	119	120	.....
Wisconsin Telephone Co., pfd.	112	.....	.....

A. T. & T. Co. April Gross Earnings Show Decline.

April gross revenue of the American Telephone & Telegraph Co. amounted to $9,912,890, against $9,078,168 in the same month last year. Net operating revenue was $3,565,629 compared with $3,981,686. The net operating income was $2,895,348 against $3,297,550. The decline is said to be due to a normal increase in operating expenses and a smaller than normal gain in gross earnings.

For the first four months of the year, gross revenue was $38,863,714, against $36,657,945 in the same period of 1929. while operating income was $12,296,414 net, against $14,077,750. Net operating revenue was $15,104,445, against $17,261,685 last year.

Associated Telephone Utilities Co. Shows Increase in Gross.

The Associated Telephone Utilities Co., Madison, Wis., reports a consolidated net income of $671,196 for the first quarter of 1930, as compared with $302,614 in the first 1929 quarter. The net income before depreciation for the 12 months ended March 31 was $2,748,626, as compared with $2,291,573 for the year ended December 31, 1929. Gross earnings for the 12 months were $15,281,921, against $12,544,779 in the year ended December 31.

The number of stations operated by the company increased 18 per cent during the first three months of 1930. A total of 446,194 stations are now operated by the system, as compared with 378,164 on December 31, 1929. Since December 31, 1929, the company has acquired control of several well established operating telephone companies, including the Mutual Telephone Co., serving the city of Erie, Pa., and operating 27,873 stations in and adjacent to that city; Petroleum Telephone Co., Oil City, Pa., operating 12,094 stations; Johnstown Telephone Co., with 14,847 stations, serving the city of Johnstown, Pa., and the Ohio Cities Telephone Co., operating 6,052 stations at New Philadelphia, Ohio.

Nebraska Continental Company Asks Stock Issue Authorization.

The Nebraska Continental Telephone Co. has filed application with the Nebraska State Railway Commission for authority to issue $255,000 worth of common stock for the purpose of completing the purchase, announced some time ago, of the Farmers & Merchants Telephone Co. of Alma. At that time the Continental purchased from R. L. Keister and others stock representing control of the company. Since that time it has been operated as a part of the Continental system in Nebraska, but it is now deemed desirable that the properties be unified.

The Continental has headquarters at Columbus, and has an authorized capital stock of $2,400,000. Of this amount there have been issued and are outstanding 4,000 of the 7,500 shares of 7 per cent preferred stock authorized and 9,300 of the 16,500 shares of common stock.

Under an agreement that the directors of the Alma company have ratified, the stockholders of that company will be asked, and are expected, to accept 2,350 shares of common stock of the Continental company for their holdings. There is an indebtedness of $14,700 against the Alma company and there have also been additions and betterments made by the Con-

tinental since it has been in charge, all of which are presented in the stock issues of which approval is asked.

The Alma corporation operates exchanges at Alma, Stamford, Republican City and Orleans in Nebraska, and at Long Island and Woodruff, just across the line in Kansas. Most of the property of the latter exchanges lies in Nebraska. As of November 1, 1929, valuation the property represents a reproduction new value of $253,000; and giving effect to additions and betterments since that date and deducting the existing indebtedness of the corporation, a net worth of $238,467 is shown. The figures also show a net income of $4,493.57.

The company, in its application, says that the valuation is a conservative one, and that the figures represent much less than the fair value of the property in use. As the company does not parallel the lines of any other telephone company and is not in a competitive situation, it is asserted that there need be no notice to the public or a 60-day wait before consolidation of the stocks of the companies can be effected.

Pacific Bell Company Shows Improved Earnings in April.

Improved April earnings were reported by the Pacific Telephone & Telegraph Co. in the monthly statement recently released. The amount of net earnings after interest in April, 1930, totaled $1,660,159. This compares with $1,233,905 in April, 1929, and with $1,154,992 in March of this year. Total operating revenues were also larger, totaling $8,807,775 as against $8,302,767 in April a year ago.

The company reports that in the four months of 1930 to April total operating revenues were $34,493,162 and net was $4,641,712 as compared with total revenues of $32,694,625 in the same four months of 1929 and net of $5,052,689 in the same four months of 1929.

On a share basis this year's four months' earnings are equivalent, after allowing for dividend requirements on 6 per cent preferred stock, to $1.68 a share on 1,789,075 shares of common stock. This compares with $3.67 a share on 930,000 common shares for the same period last year.

New Telephone Troublemen's Test Set

Clearing of Trouble on Telephone Lines Shown to Be Matter of Proper Equipment and Intelligent Application—Description of Actual Location of Trouble on Rural Party Line Using New Test Set—Description of the Test Set

By Chris D. Stewart

Clearing of trouble on telephone lines is a job that has to be done. It is very easy for the manager or wire chief to say to the lineman: "That line is out of service; go and clear the trouble."

It is not so easy, however, for the troubleman to do this; and in many cases it is quite a problem. If any reader doubts this statement, let him ask the first troubleman he meets.

Troublemen are generally good sports, and not given to complaining. Usually they go about their business with a smile, doing the best they can with the best they have to do it with. Would it not be better, however, to see that your troubleman is properly equipped with the best kind of apparatus with which to locate trouble so that he can do so with the least amount of effort. In doing this the company not only helps the troubleman, but by saving time and travel actually cuts the cost of clearing trouble.

If a troubleman is equipped with a test set that tells him at all times where his trouble is, he is in a better frame of mind to meet subscribers; and he can answer questions more intelligently and leave the subscriber with a better impression of the company and its methods.

With these ideas in mind, Stewart Brothers have developed a new, inexpensive test set for the location of trouble. This will tell the troublemen at all times which way the trouble is from him, and approximately how far; and this with the least amount of effort possible. The new test set, in addition to accomplishing all of this, is a complete telephone, having receiver, head-band, induction coil, battery, generator and transmitter; and it talks up as good as a telephone.

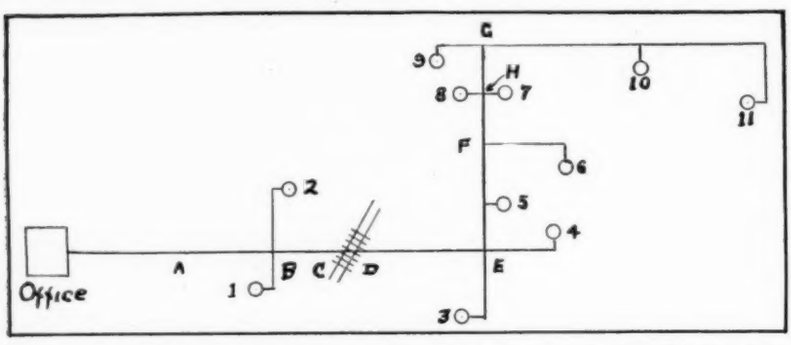
The set is equipped with a lamp which indicates trouble and tells about how far it is from the tester. It is also equipped with a detector coil which has a jack for connecting it to the receiver. The receiver is connected to a plug.

This lug can be plugged into the detector coil and the coil slipped over the line for determining the direction to trouble.

Probably the best way to explain to the reader these time-saving features would be to take him out with us when clearing a case of trouble. This trouble happened to be on a rural metallic line about ten miles in length, having 11 subscribers on it. The line was short-circuited. The troubleman had been over it the afternoon before and did not locate it. Fig. 1 shows the layout of the line.

The first test was made at the office. The line was disconnected at the rack and tested out with the lamp. The lamp showed dim, indicating the trouble to be out among the subscribers. If the lamp had shown bright, we would have known the trouble to be near the office. To test with the lamp for a short-circuit, the line cords are connected one to each side of the line, and the crank turned at normal speed. No light shows a clear line. A bright light shows the trouble will be close, etc.

We next went out on the line. No test was made at *A* or *B*, because the trouble seemed to be farther out, and there was a



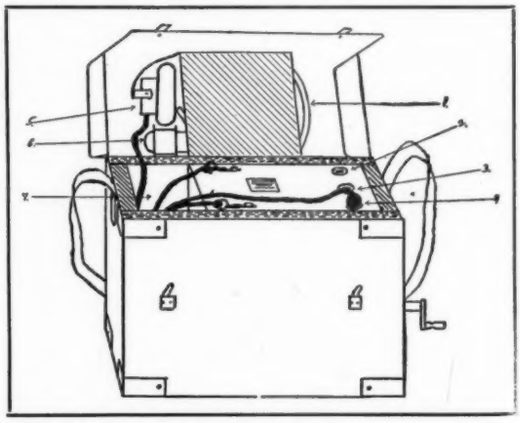
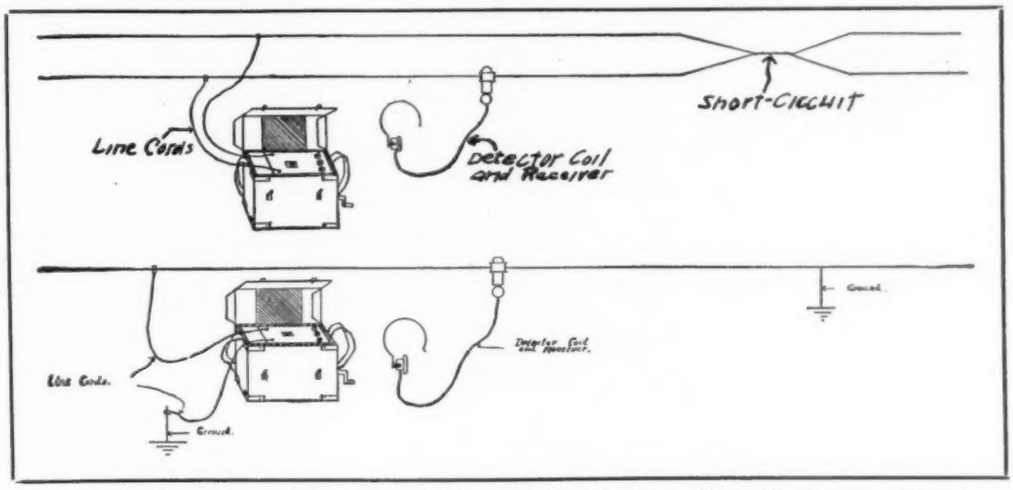


Fig. 1. Diagram of Line in Which Short-Circuit Was Located—Fig. 2. The New Stewart Test Set.

railroad crossing at *C* and *D*. Here the line crossed under the tracks through a pipe. We tested at *C* for direction and the trouble proved to be on ahead.

In testing for direction for a short-circuit, one line cord is connected to each side of the line. Next the detector coil which is nested in the cover (see Fig. 2) is connected to the receiver by means of a plug and jack. The receiver is equipped with head-band which also nests in the top when not in use, allowing free use of both hands.

The coil is next slipped over the line wire. When turning the crank, if the coil is on the side of the line cord toward the short-circuit, a tone will be heard in the receiver. If the short is in the opposite direction, no tone will be heard. Connections for testing the direction to a short-circuit are shown in Fig. 3.



Figs. 3 and 4. Connections of Test Set to Line for Locating a Short-Circuit and a Ground.

As trouble occurs quite frequently where a line is run through a pipe, a test was made at *D* and the trouble tested on ahead. If the trouble had tested back at *D*, we would have known it to be under the track. We next went on to *E*. Here the trouble could have been in any one of the four directions. It only took us a minute, however, to determine the trouble was towards *F*.

Each time before testing for direction, a test was made with the lamp to see if the trouble was still in and to see if the lamp showed brighter than at the last test.

We went on to *F*. Here the lamp showed bright, indicating we were near our trouble. A test for direction showed the short-circuit to be on ahead. The next test was made at *G*. Here the lamp showed about the same as at *F*, and a direction test showed the short to be back toward *F*. We next went back to *H*, and the lamp showed very bright and a direction test showed the trouble to be toward 7. As there were only six spans of wire from *H* to 7, and this seemed to be clear, the trouble was evidently in the house at 7.

The house telephone was disconnected, and it rang clear. The test set was connected to the inside wire and the lamp showed very bright. The inside wire was traced out and it was found that the insulation had been damaged by furnace men, and the inside wiring was short-circuited.

All of these tests for the trouble had been made without opening the line, and with the least possible effort. We knew at all tests which way the trouble was from us; in fact, it is just like a treasure hunt. At each stop the test set told which way to go for the next stop. This trouble was cleared in about 2½ hours, and the line was left in as good as a condition as when we started. No soldering connections were broken and no extra splices put in the line.

For locating a ground on one side of a metallic line, make connections as shown in Fig. 4. This same connection is used for locating a ground on a one-wire line with ground return, or on what is commonly known as a grounded circuit.

The detector coil works equally well on copper or iron, either bare or insulated, as the coil slips over the line and does not make metalic contact with the line. This also saves the time and labor of cleaning the wire for connections.

The transmitter circuit of the test set is so arranged that battery can be sent out by the wire chief to operate the transmitter; also, the test set will send out battery enough to operate a transmitter at the other end of cable when testing on dead cable, or for picking out pairs.

The trouble can be cleared on a line without breaking any joints or making extra splices in the line, thus leaving the line in the condition as before.

The shoulder strap is supplied with a ring and hook so that to bring the set into the best operating position across the chest of the operator. As the set is equipped with a head-band on the receiver, this leaves both hands of the operator free. The set comes complete with all cords and clips, battery and shoulder straps, ready for use.

Further information regarding this testing set may be obtained from Stewart Brothers, Ottawa, Ill.

Development of Hungarian System Shown in Year Book.

Interesting data concerning the development of Hungary's telephone system are contained in the 1928 year book just published by the General Post Direction. Street telephone stations have been opened in Budapest, and 200 such stations will be at the disposal of the public shortly, U. S. Commercial Attache William A. Hodgman, Budapest, Hungary, reports.

At the request of regular subscribers, private stations will also be equipped in a way to enable their use as public stations. During night hours a 50 per cent reduction will be granted. Long distance telephone communications were opened with the United States, Cuba, Canada and Mexico. Such service already existed with all French stations, and new extensions were made in the communications with Italy, Poland and Yugoslavia.

During 1928, 198 new offices were opened, thus reaching 67 per cent of the pre-war level; the number of new stations installed amounted to 9,900. Hungarian telephone conversations with foreign countries increased 18 per cent; foreign telephone conversations with Hungary, 44 per cent.

Hungarian telephone stations during 1928 carried on 270,827 conversations with Austria, 116,375 with Czechoslovakia, 78,947 with Yugoslavia, 63,305 with Germany, 8,104 with Italy, 7,994 with France, 6,799 with Switzerland, 4,758 with Poland, 3,607 with England. Twenty-two conversations took place between the United States and Hungary.

As regards Budapest, there are 20,400 automatic telephones and 18,100 old style telephones operating there. More than 53 per cent of all telephones were automatic in Budapest at the end of 1928, a work that involved 3½ years. The number of subscribers increased considerably; 2,643 stations were opened, thus increasing the total number of telephone stations operating in Budapest to approximately 40,000.

Rat Deprives Subscribers of Service by Gnawing Cable Sheath.

After a long search, telephone workers in Ivanhoe, Minn., discovered why a dozen or more telephones went out of commission. It was found that a rat had gnawed into a conduit containing 50 service wires leading from the telephone office and that 12 of the wires had been broken.

For several days telephones had been going "dead" and Manager William Palmlund of the Central West Public Service Co., with assistants, put forth every effort to locate the trouble.

With the Manufacturers and Jobbers

New FWD Construction Truck for Dakota Central Company.

The Dakota Central Telephone Co., of Aberdeen, S. D., has recently purchased a new FWD construction truck, equipped with a hole-digger that will dig from 100 to 110 holes per day, and a derrick for setting poles. The digger mechanism is mounted on the rear end of the truck and the two augers included in the truck equipment may be adjusted to bore holes in any direction at any angle up to 45 degrees from the perpendicular.

The winch can be used in removing old poles with very little digging, unless the ground is exceptionally hard. When the derrick is not in use, it is dismantled and carried on the side of the truck.

There are five speeds in the truck. The truck transmission, the winch, and the digger are also operated at these five speeds. A crew of three men can perform any operation such as setting poles, digging holes or removing poles with the truck.

Higher Tensile Strength Standards in Copperweld Wires.

Raising the tensile strength standards of Copperweld wires and strands to higher permanent levels has been completed. Never before, in the history of the copper-covered steel art, have such tensile strengths been reached, a recent announcement states.

George A. Scoville, Vice-President in Charge of Sales for Stromberg-Carlson Telephone Mfg. Co., Received a Sterling Silver Tea Service as a Mark of Affection From the Sales Organization of His Company at Its Annual Sales Conference. Carl W. Schafer, at Left, Manager of the Chicago Office, Made the Presentation.

Two grades of Copperweld wires and strands—"High Strength" and "Extra High Strength"—replace the two grades formerly produced, which were known as "Standard Tensile" and "Xtra-Hi-Tensile" grades. The new strengths represent increases on the order of 50 per cent over the old strengths, and, therefore, give great advantage in greatly increasing the factor of safety of wire installations.

The higher strength standards do not change the other characteristics familiar to users of Copperweld wires and strands, such as ease of handling and the permanence of the molten-weld between the thick outer covering of copper and the steel core. As heretofore, these wires are guaranteed by the makers to have a life, insofar as corrosion is concerned, equal to the life of solid copper wire.

Coincident with the increase in strength standards, comes the announcement that electric furnace steel is now used as standard for the steel core in all Copperweld wire, strand, and ground rods. It is said that the Copperweld Steel Co. is the first wire mill to use electric furnace steel exclusively in the manufacture of wire.

Greater safety without any change in construction standards, is claimed as now possible through the use of these higher strength Copperweld materials. On the other hand, the higher strengths make it feasible to increase the spacing between poles and towers, thereby decreasing the required number of poles or towers and pole line materials.

Size (A.W.G.) in Inches No of Wires	Actual Diameter (Inch)	Area (Square Inches)	Weight Per 1000 Feet (Lbs.)	Resistance Per 1000 Ft. (Ohms) Cond 40 Per Cent	Cond. 30 Per Cent	"High Strength" Cond. 40 Per Cent	Cond. 30 Per Cent	"Extra High Strength" Cond. 30 Per Cent
			Solid Wire, Bare, Hard-Drawn					
4	.204	.03269	116.	.636	.848	3,530	3,920	4,660
5	.182	.02602	91.9	.798	1.065	2,940	3,250	3,910
6	.162	.02061	72.8	1.008	1.344	2,430	2,680	3,240
7	.144	.01629	57.5	1.276	1.701	2,000	2,200	2,670
8	.128	.01287	45.5	1.615	2.153	1,650	1,800	2,190
9	.114	.01021	36.1	2.036	2.714	1,360	1,480	.....
10	.102	.00817	28.9	2.543	3.390	1,130	1,230	.....
11	.091	.00650	23.0	3.195	.....	900	.....	.....
12	.081	.00515	18.2	4.032	.....	710	.....	.....
			Strand, Bare, Hard-Drawn					
5/8 (7 No. 4)	.612	.2288	820	.122	.092	22,240	24,700	29,360
9/16 (7 No. 5)	.546	.1821	650	.154	.115	18,500	20,480	24,620
1/2 (7 No. 6)	.486	.1443	515	.194	.145	15,300	16,880	20,410
7/16 (7 No. 7)	.432	.1140	407	.245	.184	12,600	13,860	16,820
3/8 (7 No. 8)	.384	.0901	322	.311	.233	10,390	11,340	13,800
11/32 (7 No. 9)	.342	.0715	255	.392	.294	8,570	9,320	11,280
5/16 (7 No. 10)	.306	.0572	204	.489	.367	7,120	7,750	9,200
3 No. 6	.324	.0618	220	.452	.339	6,200	6,830	8,260
3 No. 7	.288	.0489	174	.572	.429	5,100	5,610	6,800
3 No. 8	.256	.0386	138	.723	.543	4,210	4,590	5,580
3 No. 9	.228	.0306	109	.912	.684	3,470	3,770	4,560
3 No. 10	.204	.0245	87	1.139	.854	2,880	3,140	3,720

Coefficient of linear expansion: 0.000072 per degree Fahrenheit.
Modulus of elasticity: Solid, 24,000,000; strand, 23,000,000.
Breaking load of strand is taken as 90 per cent of the sum of the breaking loads of the individual wries.
Compiled by Copperweld Steel Co.

Wire Tables: Copperweld Wire and Strand; Bare, Hard-Drawn; "High Strength" and "Extra High Strength" Grades

THE INCREASING USE OF THE TELEPHONE REQUIRES THE EXPENDITURE OF HUNDREDS OF MILLIONS ANNUALLY FOR EXTENSIONS AND IMPROVEMENTS

It keeps faith with your needs

An Advertisement of the American Telephone and Telegraph Company

You have found a constantly growing use for the telephone. You have learned its value in business. You have found it helpful in keeping contact with family and friends. Its increasing use has given the telephone its humanly important place in modern life and requires the expenditure of hundreds of millions annually for extensions and improvements.

In 1929 the Bell System's additions, betterments and replacements, with new manufacturing facilities, meant an expenditure of 633 million dollars. During 1930 this total will be more than 700 millions.

Definite improvements in your service result from a program of this size and kind. They start with the average time required to put in your telephone—which in five years has been cut nearly in half. They range through the other branches of your service, even to calls for distant points—so that all but a very few of them are now completed while you remain at the telephone.

In order to give the most effective, as well as the most economical service, the operation of the Bell System is carried on by 24 Associated Companies, each attuned to the part of the country it serves.

The Bell Laboratories are constantly engaged in telephone research. The Western Electric Company is manufacturing the precision equipment needed by the System. The staff of the American Telephone and Telegraph Company is developing better methods for the use of the operating companies. It is the aim of the Bell System continually to furnish a better telephone service for the nation.

BELL SYSTEM

L. M. Ericcson Telephone Co. Reports Best Year in 1929.

The L. M. Ericcson Telephone Co. reports for 1929 a net profit of 7,107,000 kronen ($1,907,519), the highest in the company's history. This compares with 3,770,000 kronen ($1,111,868) earned in 1928.

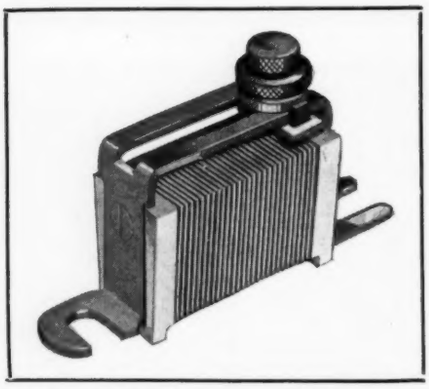
The value of orders filled last year totaled 49,000,000 kronen ($13,151,600), against 42,000,000 kronen ($11,272,800) in 1928. The value of unfilled orders at the end of the year was 26,500,000 kronen ($7,112,600), against 23,000,000 kronen ($6,173,200) at the close of 1928.

The report says the company made excellent progress in Russia, and a contract was concluded whereby the Ericcson automatic telephone system will be the only one used. Substantial progress was made in Argentina. An agreement was reported signed with the Bell system, tying up United States telephones with the Ericcson lines in Mexico.

Improved Convenient Resistance Unit for Limiting Current.

Originally designed for regulating the charging current in storage batteries where precision to the hundredth part of a volt is essential, and to perform dependably under conditions of severe service in small space, battery fumes, vibration and great changes in temperature, Fansteel resistance units are claimed to be ideal for any application where it is desired to limit or regulate accurately the flow of current up to 12 watts.

The outstanding advantages of Fansteel resistance units are: Compact design for installation in small space; one standard dimension of all values, making it possible to change quickly from one value to another; accurate adjustment without tools; ability to withstand corrosion and great



Fansteel Adjustable Type Resistance Unit.

temperature changes; and open construction which helps radiate heat and facilitates inspection.

Fansteel resistance units are available in both fixed and adjustable types. In the latter, resistance is adjustable in 27 equal steps. A heavy bronze spring makes at least four points of contact with the non-corroding wire with which the unit is wound. An efficient locking device assures firm contact, and all the framework is heavily cadium plated.

The overall dimensions of the adjustable type unit are 3 1/16 ins. by 1 13/16 ins. by 25/32 in. They mount on any base with screws at 2⅜-in. centers, the porcelain body of the unit being designed to separate and insulate the resistance wire from the base.

Fansteel resistance units are available in ten standard values from 0.75 ohm to 200 ohms. Special values are made to order by the manufacturer, Fansteel Products Co., Inc., North Chicago, Ill.

Coupling Condensers for Power Line Telephony.

Condenser coupling for power line telephony carrier current system affords a reliable and efficient method of conveying the telephone signals direct to the power line. This method does not require the difficult and expensive changes to power lines and tower structures which are necessary to effect an ideal antenna arrangement. The condenser coupling system operates with a minimum radiation of the telephone energy to other power lines.

The necessary coupling condenser equipment is now made available by the Dubilier Condenser Corp. of New York City, in the form of the Dubilier type 670 condenser units. These units can be arranged in series-multiple combination for any line voltage or coupling capacity.

For line voltages higher than 22,000 volts, these condensers may be conveniently stacked and bolted in series, beginning with two in series for 33,000 volts, and piling up to 11 in series for 220,000 volts. The coupling condensers are available in capacities of .001, .002 and .003 mfd., for line voltages of 22,000, 60-cycle A. C.

A bulletin describing and listing the Dubilier type 670 coupling condensers, has now been issued. The bulletin covers the capacities, prices, number required in series for different line voltages, and other details of the coupling condensers. The dimensions of the unit are also given, as well as a list of prominent users. A copy may be had for the asking by addressing the Dubilier Condenser Corp., 342 Madison Ave., New York City.

Paragraphs.

FRANK F. FOWLE & Co., consulting engineers of Chicago, are now located in suite 2254, 221 North La Salle street, Chicago.

THE SUTTLE EQUIPMENT Co., Lawrenceville, Ill., announces that its new general catalog is ready for distribution. A complete description with prices of the

One Corner of the Stromberg-Carlson Telephone Mfg. Co. Display in the Seneca Hotel of Rochester at the Recent Annual Convention of the Up-State Telephone Association of New York. Many Delegates to the Convention Visited This Exhibit to Inspect Stromberg-Carlson Telephone and Radio Equipment. After the Cinvention Adjourned, About 150 Telephone People Visited the Company's New Manufacturing Plant.

Kempster B. Miller, Prominent Telephone Engineer, Caught By Camera While Visiting the New Stromberg-Carlson Telephone Mfg. Co. Plant in Rochester, N. Y. Left to Right: Ray H. Manson, Vice-President and Chief Engineer; E. R. Stonaker, Consulting Traffic Engineer; Ben Woodbury, Telephone Sales Manager; Kempster B. Miller, and Eugene A. Reinke, Commercial Sales Manager of Stromberg-Carlson.

Recognized the World Over for Its Quality · Long Life · Dependability

Burgess, the famous black and white striped batteries, are always on the job—in the navy, the signal corps and with the Byrd Antarctic Expedition.

Burgess Telephone Batteries too, are known the world over for their dependability—ready to give instant and intermittent service over a long period of time.

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GALVANIZED PRODUCTS

Telephone and Telegraph Wire

Extra Best Best (EBB)
Best Best (BB)
Steel

Seven Wire Steel Strand

Standard
Siemens-Martin
High Strength
Extra High Strength

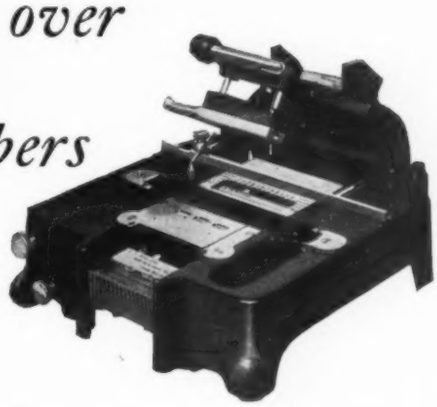
Crapo Galvanized Products combine *every* element essential to long life and low maintenance cost: pure zinc coatings, *non-cracking, non-peeling*—correct tensile values—proper ductility.

Immediate shipping service from Distributors' stocks in all jobbing centers.

Manufactured Exclusively by

Indiana Steel & Wire Co.
Muncie, Indiana

Used by 84 out of 114 Independent Companies *having over* 5,000 *subscribers*



THE telephone industry has found that Addressographs reduce expense, save time, prevent mistakes and add to profits. Of the 114 independently owned operating telephone companies in the U. S. rated as having 5000 subscribers, 84 use Addressograph products.

From the small hand-operated machines to the large automatics there is an Addressograph for every size business. Same machine imprints subscribers' bills with name, address, date, rate, etc. And writes and imprints countless forms used in the office, stockroom, shop, etc. The work is done 10 to 50 times faster than by hand methods and errors are impossible.

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Am interested in knowing how Addressograph will reduce expense and save time in my business.

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company's comprehensive line of telephone supplies and rebuilt switchboards is contained in the book.

The Suttle company, according to the catalog, stocks practically every item required for telephone company operation, ready for immediate shipment. A copy of the catalog may be obtained by writing to the general offices of the organization at Lawrenceville, Ill.

Transatlantic Service "Busy Hour" Comes in Morning.

Transatlantic telephone service reaches its peak between the hours of 10 and 11 o'clock a. m., New York time, which is from 3 to 4 o'clock p. m., London time. In other words the service is in the greatest demand during those periods of the days in which the business hours in America and Europe overlap.

It is an interesting fact that even with a time difference of five or more hours, which leaves only a few overlapping business hours, the hour-by-hour demand for the transatlantic service displays much the same characteristics as are generally comparable with long distance telephone traffic in this country. Thus, while the hour in the morning is the busiest of the 24 for transatlantic traffic, there is also a slight rise in this traffic in the afternoon hour at about 2 o'clock, and in the early evening hour at about 7, just as there is a similar rise in traffic in this country.

The average number of transatlantic calls per day during 1929 was about 50 messages. The largest number of messages handled on any one particular day was 139. The trend has shown a consistent increase in the use of this service. Some of the factors contributing to this increase, other than the decrease in rates, are the improvement in transmission and the speed of completing connections, the increase in points within reach of the service, and a rising appreciation by the public at large of the value of such service.

What the Commissions Are Doing

Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

Kentucky Court of Appeals Upholds Lower Court in Suit.

A decision of considerable importance in rate regulation of utilities by Kentucky municipalities was handed down by the Kentucky Court of Appeals, in the suit of J. C. Norris, mayor of Augusta, and Augusta councilmen against the Kentucky State Telephone Co. on June 10.

The court upheld the telephone company's right to serve the Augusta area under reasonable franchise provisions despite the council's attempt to give the business to the Northern Kentucky Mutual Telephone Co., organized to compete with it.

The ruling came in the form of a decree affirming a Bracken Circuit Court injunction against the mayor and council to prevent them from interfering with the company's poles and lines.

Augusta patrons were served, at the time of the original suit, by the Bracken County Telephone Co., which since has been taken over by the Kentucky State Telephone Co. This company had a franchise, which expired and which it sought to renew.

After delay, a franchise was given to the rival company, and the city sought to prevent the Bracken company and its successor, the Kentucky State Telephone Co., from operating. The company sued to prevent interference with its business and finally won its case.

Southern Bell Sells County Rural Lines in Kentucky.

The Kentucky Railroad Commission has approved the acquisition of all Southern Bell Telephone & Telegraph Co. rural exchanges and lines in Mason county, Kentucky, by the Mason County Telephone Co.

The sale of lines includes the three exchanges outside of Maysville in Mason county, Fernleaf, Washington and Mayslick. The Mason County Telephone Co. recently purchased lines in the county and immediately under direction of General Kehoe, manager, began their reconstruction.

By the acquisition of the Southern Bell lines, the service of the Mason County Telephone Co. will approximate 750 miles of lines in Mason county and the improvement will include the installation of 2,700 new poles. The Mason County company takes possession of the Southern Bell lines on July 1, according to the approval of the sale given by the Kentucky Railroad Commission.

Nebraska Company Authorized to Charge New Toll Rate.

The Central Nebraska Telephone Co., which has headquarters at Grant, has asked and secured from the Nebraska State Railway Commission approval of a proposed rate of 30 cents for the first three minutes and 10 cents for each additional minute on person-to-person calls and a corresponding rate of 20 cents on station-to-station service between its exchanges at Grant and Venango.

The company recently began a campaign for rural business, and will continue the farm line recently constructed out of Grant in the direction of Venango in order to give a direct connection between the two points.

Injuries Received While Bathing Not Under Compensation Law.

Telephone companies that supply bathing facilities for the use of employes in connection with restrooms or other departments in their exchange buildings, will be interested in the recent decision of the Nebraska Supreme Court, which has the effect of denying compensation for any injuries sustained while taking a bath.

The matter came before the court in a case from York county, where the janitor in the Young Men's Christian Association died from the effects of a fall due to slippery conditions of the swimming pool while he was taking a Saturday night bath. The court held that while this was a laudable enterprise on his part, recovery under the workmen's compensation law was limited to injuries arising out of a man's employment or else must be sustained in the course of such employment, and taking a bath did not come within either.

Final Hearing in Rate Case Brings Out Operating Peculiarities.

The final hearing on the contested application of the Lincoln Telephone & Telegraph Co. for increased rates at its Hastings exchange was held last week, and 20 days given for both sides to file briefs in the case.

The city was represented at the hearing by S. B. Lyman, at one time manager of the plant when locally-owned. He contended that when the plant was purchased in 1913 by the Lincoln company it paid $200,000 for it, but that the company opened its books with the value placed at $310,000 and has carried it on them ever since.

The company defended this figure as just, representing as it did the value not only of the Hastings Independent Co. plant, but also that of the competing Northwestern Bell Telephone Co. property and of the Inland-Glenville Telephone Co., which were also taken over.

Another point stressed in the hearing by the objectors was that the Hastings exchange has had to bear the burden of a deficit incurred in the operation of the outlying exchanges in the city zone. It was

Suttle Equipment Co.
FACTORY AND MAIN OFFICE
Lawrenceville, Illinois

Toll Tickets

Before you buy your next toll tickets, send for samples of Suttle Toll Tickets and prices.

SAVE MONEY ON THEM

You will find Suttle prices lowest, and you will be well pleased with the quality. See for yourself.

Mail Coupon For Samples and Prices

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Lawrenceville, Illinois.

Please send us a sample pad of forms of Toll Tickets you carry in stock, and prices on them.

Name .....

Address .....

Manager .....

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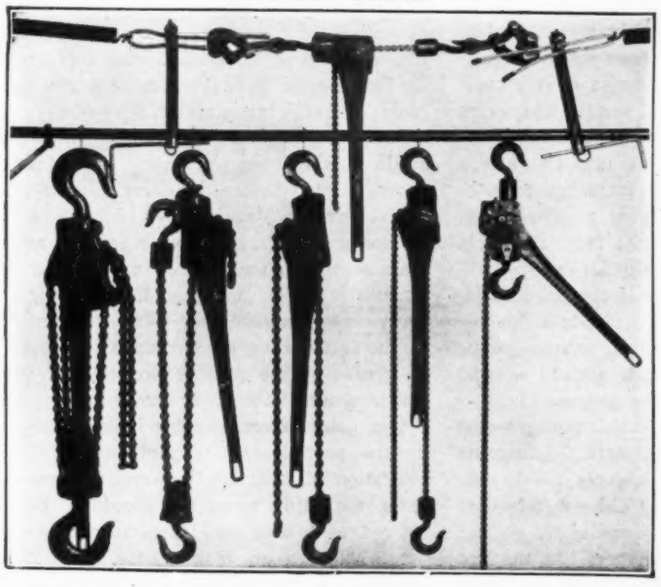
FAMILY GROUP



Model Z 6 Ton Weight 65 lbs.	Model F. S. 3 Ton Weight 36 lbs.	Model F. 1½ Ton Weight 25 lbs.	Model A ¾ Ton Weight 13 lbs.	Model A Reversed

Hoists can be used either end up or in any position.
A truly one-man tool, light, fast, powerful, simple, durable.
Models A and F particularly adapted to utility work, pulling guys, messenger wires, underground cables, poles, lifting transformers, loading heavy supplies, booming poles. Also have a pole jack for pulling and straightening poles. Pole clamp for changing top cross arms on corners and in pole lines. Will send on 30 days' trial.

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contended that if these were placed upon their own resources in revenues, the plant in the city would earn between 6 and 7 per cent.

To this it was answered that these are all one business community, tied together in mutual interest, and that city and town limits cannot be considered in determining what constitutes a proper zone of service. The present investment is $582,050, and a very substantial increase in revenues is necessary to give a reasonable return, it was shown by the company.

Company witnesses were closely questioned relative to the sudden increase in the item listed as current repairs as between 1928 and 1929. This item was $27,886 in 1928 and $42,209 in 1929. The difference was explained as being the result of an established practice of the company to permit an accumulation of repairs with the further result that the cost of repairs show a large bulge every four years. It was explained that the average of the past four years and not the money expended in 1929, the year of the last bulge, was taken into consideration in the showing of estimated expenses for the future.

I. J. Devoe, general auditor of the company, said that as a matter of fact the estimate of $30,000 for this item in 1930 was proving too low, as the increase in the plant itself has been much greater than was estimated.

In answer to the questioning of Mr. Lyman, the auditor said that there had been practically no increase in the number of telephones in use at the exchange outside of Hastings proper since 1915. In the city, in that time, the number of stations in service has increased from 2,736 to 4,891. Mr. Lyman pointed out that in the last three years the increase had slowed down to about a hundred a year, arguing from this that the saturation point had just been about reached, and that further increases will depend entirely upon the growth of the city.

Attorney Barred from Rate Case Because of Statements.

Railway Commissioner Randall, of Nebraska, took drastic steps the other day at a rate hearing to compel a measure of respect for the state commission by attorneys practicing before it. He barred J. M. Paul, of Harvard, from representing the patrons of the Guide Rock exchange of the Lincoln Telephone & Telegraph Co., after the latter had refused to apologize for or retract statements he had made at a mass meeting at Hastings held some weeks ago, when protests were being made against a rate increase at that exchange.

Mr. Paul is a practicing attorney in another county than Hastings, but his radical tendencies induced him to journey over to that city and address the meeting. The statement to which Mr. Randall took exception was to the effect that he, Paul, had investigated the situation and that because of the close social relations existing between members of the state railway commission and directors and officers of the Lincoln Telephone & Telegraph Co. it was impossible to get justice for the people in a case where the company was a party.

When Mr. Paul entered his appearance at the hearing at Guide Rock, Mr. Randall, who was in charge, halted proceedings to inquire if he had said what the Hastings newspaper quoted him as having said. He demanded to know what it was, and Mr. Randall read it to him. Mr. Paul excepted to this, claiming that it had no reference to the case then before the commission, and was not a proper subject of inquiry.

"Yes, it is," shot back the commissioner. "The effect of this statement is to instill in your clients here the belief that they cannot obtain justice from this commission because of social relations existing between its members and the officers of the company. It goes directly to the honesty, ability and judgment of the commissioners. What have you to say about it?"

The attorney refused to either apologize or retract what he had said, and he was told that he was out of the case. He folded up his papers and left. At the suggestion of officers of the company, the hearing was postponed until such time as the protestants could secure the services of another attorney and make ready their case.

Mr. Randall did not allow the matter to rest there. He said to the persons present that he believed the time had come for the commission to publicly resent attacks like these which have been made on several occasions. The commission is a creature of the constitution and it was given certain powers by the legislature. These included an investigation into the merits of all applications for increases in telephone rates, and made it a quasi-court, with power to find out the facts for itself and also with power to make rates.

The legislature, when it created the district and supreme courts, made it an offense for persons to make contemptuous criticism of its decisions and to ascribe improper motives to the judges. Unfortunately it had not given this power to the commission; and where defeated litigants in district court took appeals to the supreme court, those who did not get what they want before the commission, go out and make unfounded charges like the one made by Mr. Paul.

Mr. Randall said the people should know that the members of the commission take just as solemn oaths as do the judges of the courts, and that those who believe they err in making their decisions have the right to appeal to the supreme court. In only a few of the thousands of cases decided by the commission since its creation, have there been any appeals taken, and but two or three adverse decisions had been rendered. These referred to matters of law and not decisions upon the facts.

The one big exception has been when the Northwestern Bell Telephone Co. secured from the federal court an order increasing rates after the commission had issued an order removing the 10 per cent surcharge during war times.

Mr. Randall said he did not intend to longer sit by and allow such freedom of attacks upon the honesty and good faith of the commissioners. If his own brother were representing a utility corporation before the commission, he would get a fair hearing and no more, and this is true of every other litigant.

Four members of the commission have resigned in the 21 years of its existence and others have withdrawn or been beaten, all because of the fact that radicals have spread this sort of criticism around and discouraged the work of the regulatory body. They have found it easy to arouse public resentment because utilities seldom ask for rate increases until they are able to justify them, and the orders that follow are used by radicals to create prejudice.

Increased Rates Authorized When Automatic Service Is Installed.

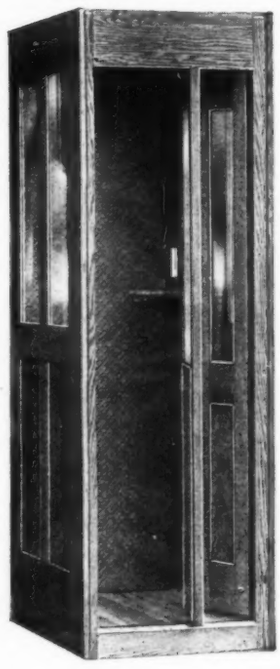
The application of the Lincoln Telephone & Telegraph Co. for authority to increase its rate at Seward, Neb., where it is proposing to erect an exchange building and to install automatic service, has been granted by the state railway commission.

The monthly rates approved are: Individual business, $5 per month; two-party, $4; residence, individual, $2.50; residence, two-party, $2; residence, ten-party, $2.50; business, ten-party, $3. These represent an increase of $1.25 for business and 50 cents on residence stations.

Protesting patrons employed attorneys to battle against the increase. The town proved to be divided in interest, most of the subscribers desiring the higher grade service and willing to pay whatever rate the commission found to be necessary and reasonable. The opposing faction fought every new proposal, but were confronted by the fact that as the exchange is making no return at the present time a rate increase would have to be made.

One point of considerable interest raised by the protestants was that in the consideration of what are fair and reasonable rates, the entire properties should be considered as a unit and rates made therefore, rather than making the local exchange the rate unit. The commission says that some years ago the company suggested that it desired to make an application involving rates for all of its properties, but this was not done, because the commission indicated rather definitely that the matter could be handled more intelligently, exchange by exchange, when the necessity arose.

The commission says it is still of that opinion. With properties located all over



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the South Platte territory, the commission believes the determination of what is a fair and reasonable rate can be better reached and justice more nearly administered if the kind of service desired and rendered in a community and its value to that community be separately considered.

The commission says that it is difficult to gauge public opinion as to whether Seward patrons want automatic service or not, because of varying testimony and opposing petitions, and the fact that the opposing groups are numerous. It was, therefore, necessary for the commission to consider it from a service standpoint. It concludes thereon that as the service will be greatly improved, it should not deny the management the opportunity to develop the property as it indicates. Its judgment is that this service should be instituted at this time, and the commission says it will not arbitrarily interfere therewith when so large a number of patrons desire the higher type of service.

The objectors also demanded that Seward be credited with a larger percentage of the toll than the customary 25 per cent, because it is a toll center and because if allocation were made on a property basis, it would be shown to be entitled to more. The commission says it has caused, in past rate cases, studies to be made of costs where exchanges the size of Seward were involved, and it found that 25 per cent was correct.

It finds no markedly different conditions at Seward that would justify any variance from that formula. It also found on reason for changing the application of the percentage because of toll supervision expense, holding that if this were done it would be to the disadvantage of tributary territory and what Seward gained would be largely lost to larger toll centers, Lincoln supervising many Seward calls.

The commission discusses in detail the various items of revenues and expenses, and concludes that at the lowest possible valuation suggested the net revenues would not exceed 6.1 per cent on the investment. Hence it finds that the rates requested are necessary and required for corporate purposes. This conclusion rests in part upon a depreciation setup of 5.5 per cent, whereas most of the company's properties are on the 6 per cent basis.

The commission says that in view of the O'Fallon decision it must take into account reproduction new less depreciation in arriving at a fair valuation. New money going into the property will approximate $87,000, and the commission says that no injustice will be done ratepayers if $159,000 be taken as a rate base. The company setup was $202,352. Net earnings under the new schedule are estimated at $9,639.

In addition, consideration should be given, the commission says, to the wide area of free service available to Seward subscribers. They may talk in all direc-

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tions to practically all towns in the county, Milford, Dwight, Tamora, Garland and others, which is of value and the furnishing of which involves items of cost. The commission does not approve of service being furnished outside of base areas, but is not inclined to disturb such conditions when they have existed so long as to be interwoven in the business and social lives of the various communities.

The commission provides that the rates for the new service offered, which includes ten-party rural residence and ten-party business, shall not become effective until the company is prepared to supply automatic, full selective ringing service on its rural lines.

Oklahoma Commission Orders Reconnection of Telephones.

The Oklahoma Corporation Commission recently issued an order requiring the United Telephone Corp., of Watonga, within 30 days of the effective date of the order to reconnect the telephone of J. H. Geeslin as well as telephones of others who are in good standing and are similarly situated on the direct line serving Geeslin and to continue to render service directly to subscribers into the city of Watonga, as was the practice heretofore, until relieved of such obligation by commission.

The United Telephone Corp. is authorized to refuse to serve new applicants in the Greenfield trade territory or into the Greenfield exchange area through the city of Watonga or to restore service to any of the subscribers affected by the order, in case they become delinquent. Mr. Geeslin alleged that the action of the United Telephone Corp. in discontinuing his direct connections with the Watonga exchange and connecting him with the Greenfield exchange, lessened the amount of free service which he had heretofore been receiving.

Ohio Supreme Court Refuses to Dismiss City's Petition.

The Ohio Supreme Court has overruled the motion by the Cincinnati & Suburban Bell Telephone Co. to dismiss the petition in error filed by the city of Cincinnati in the case growing out of the city's plans to lay the street car tracks upon the side of the street on Delta avenue from Linwood to Erie avenue.

"When the city proposed to lay the tracks upon the side of the street on Delta avenue, as they are laid upon Erie avenue, rather than in the middle of the street, the telephone company objected because its conduits are laid in the side of the street, and the company claimed the laying of the tracks there would interfere with its property in the conduits," said Acting City Solicitor Ed F. Alexander.

"The Common Pleas Court and the Court of Appeals sustained the telephone company, and we appealed to the Supreme Court of Ohio. The telephone company then filed a motion to have our case before the supreme court dismissed, but the court has overruled this motion, which means that the court will hear the case. It probably will be heard next October."

Ohio City Granted Telephone Franchise 47 Years Ago.

The fact that only eight years after the invention of the telephone, the city of Painesville, Ohio, granted a franchise to a telephone company was revealed before city council recently.

C. M. Grauel, representing the Ohio Bell Telephone Co., asked that a number of old franchises granted successive telephone companies operating in Painesville be annulled and a new one, incorporating all the present existing regulations, be drafted so as to clarify the rules under which the Bell company operates in the city now.

The first of the series of half a dozen or more franchises enumerated by Mr. Grauel was granted in 1883, he said.

Wisconsin Company Authorized to Issue Common Stock.

Under the date of June 21, the Wisconsin Railroad Commission authorized the Theresa Union Telephone Co., of Theresa, to issue $78,150 par value of its common stock in exchange for $70,150 par value of common stock of Random Lake Telephone Co., Eden Telephone Co., Cascade Telephone Co., Oakfield Telephone Co. and Fond du Lac Rural Telephone Co., and $8,000 principal amount of bonds of Oakfield Telephone Co.

As the owner of all of the capital stock of these corporations, the Theresa company was ordered to convey to itself all of the properties and other assets of these corporations, subject to existing liabilities, in consideration of the cancellation by the Theresa Union Telephone Co. of the capital stock and bonds of the constituent companies.

The commission found that value of the net assets was equal to the par value of the securities authorized, and that the proposed consolidation was consistent with the public interest.

Ohio Cities Company Asks Stock Issue to Purchase Properties.

Acquisition of 13 rural and village telephone companies is contemplated by the Ohio Cities Telephone Co., now operating in New Philadelphia and Dover, Ohio, it was revealed on June 16, in the company's filing with the public utilities commission of an application for authority to issue certain stocks with which to purchase the companies, which are valued at $791,400.

The companies which the Ohio Cities Telephone Co. plans to take over and operate are: The Amanda Telephone Co., Amanda; the Barlow-Watertown Telephone Co., Barlow, Watertown and Beverly; the Celina & Mercer County Telephone Co., Celina, Burkettsville, Coldwater, Fort Recovery, Neptune, and St. Henry; the Coshocton County Telephone Co., Cooperdale and Warsaw; the Farmers Telephone Co. of Caldwell, Caldwell, Bell Valley, Dexter City, Macksburg and Summerfield.

The Garrettsville Telephone Co., Garrettsville; the Gibsonburg Telephone Co., Bettsville, Gibsonburg and Helena; the Lowell Farmers Telephone Co., Lowell; the Mendon Telephone Co., Mendon; the Ohio City Home Telephone Co., Ohio City; the Pleasant City Telephone Co., Pleasant City and Senecaville; the Willshire Telephone Co., Willshire, and the Wren Telephone Co., Wren.

The properties involved are scattered from the far southern corner of the state in Washington county to the northwestern corner in Van Wert county.

The Ohio Cities company seeks to issue 105,520 shares of its common capital no par stock at $7.50 a share to purchase the properties and assets of the smaller companies, subject to the current liabilities outstanding as of March 31, 1930.

The purpose of consolidation, the application said, is to create a larger and more efficient organization.

Summary of Commission Rulings and Schedule of Hearings.

ALABAMA.

June 10: Petition filed asking approval of the sale of the Bobo Telephone Co. properties at Kennedy and the Millport Telephone Co. at Millport, to the Lamar Telephone Co. The Bobo company is owned by Lewis Bobo and the Millport company by I. K. McAdams.

ARIZONA.

June 12: Hearing at Yuma on the application of W. G. Keiser for authority to establish a telephone exchange at Quartsite to serve that town as well as Ehrenberg, Salome, Wendon and intermediate points.

CALIFORNIA.

June 18: A. S. Bryant, operating under the fictitious name of Bridgeport Telephone & Telegraph Co., in Mono county, having rebuilt his telephone lines and having complied with recommendations made by the commission in a previous order, commission ordered him to place in effect July 1, 1930, a schedule of rates governing such service.

ILLINOIS.

June 14: The Richland & Shelbyville Township Mutual Telephone Co. filed complaint against the Illinois Southeastern Telephone Co. charging that the Illinois Southeastern company is furnishing service to some of the Richland & Shelbyville Mutual's patrons to the extent that it may put the Mutual company out of business.

June 18: Commission authorized extension of an order for suspension of proposed increased rates of the Flanagan Telephone Co. in Flanagan, Livingston county, from July 5, 1930, to January 5, 1931.

June 24: Hearing at Springfield before Commissioner Wilson in the matter of proposed advance in rates for service in Freeport by the Stephenson County Telephone Co., stated in rate schedule I. C. C. No. 6 of the company.

June 25: Hearing at Springfield before Commissioner Brinkman in the matter of

complaint of insufficient service by the Wabash Valley Telephone Co. in Cheneyville, and for connection and service by the Cheneyville Telephone, now operated by the Wabash Valley Telephone Co.

June 25: Hearing at Springfield in the matter of joint application for the approval of sale by the Illinois Bell Telephone Co. and purchase by the American Telephone & Telegraph Co. of Illinois of certain wires and crossarms, and an interest in the Carmi-Harrisburg toll line of the Illinois Bell company.

June 26: Continued hearing at Princeton before Commissioner Collins in the matter of proposed increase in rates for service by the Illinois Allied Telephone Co. in Princeton, Ladd, Ohio, Tiskilwa, LaMoille, Manlius, Dover, Sheffield, Wyanet, Walnut and Spring Valley.

June 26: Continued hearing at Princeton before Commissioner Brinkman in the matter of the joint application for authority by the Illinois Allied Telephone Co. to buy all the corporate rights, franchises, assets and properties owned by the Bureau County Independent Telephone Co. of Princeton; also for authority of the Illinois Allied company to operate these properties in Bureau County.

July 8: Hearing at Springleld of the application of the Illinois Consolidated Telephone Co. for an increase in rates in Montgomery county. The proposed increase would affect Hillsboro, Raymond, Irving, Witt, Waggoner, Farmersville, Butler, Nokomis, and Harvel.

INDIANA.

June 14: Petition filed for an increase in telephone rates for rural subscribers by the Interstate Telephone Corp. of Union City. The petition seeks increases ranging from 25 to 50 cents a month.

KANSAS.

June 30: Hearing at Topeka on application of E. R. Ruch, owner of the Claflin Telephone Exchange, for permisison to sell his plants and properties at Claflin and Beaver to the Western Telephone Corp.

June 30: Hearing at Topeka on application of the Western Telephone Corp. for a certificate of convenience and authority to transact the business of a telephone exchange at Claflin and Beaver.

June 30: Hearing at Topeka on application of the Farmers Mutual Telephone Co. for permission to sell its telephone plant and property at Altamount to the Kansas Home Telephone Co. whose headquarters are in Topeka.

June 30: Hearing at Topeka in the matter of application of Bert Bradley for permission to sell his plant and property at Benedict to the Kansas Home Telephone Co. of Topeka.

June 30: Hearing at Topeka on the application of the Kansas Home Telephone Co. for certificate of convenience and authority to transact the business of a telephone exchange at Benedict.

KENTUCKY.

June 11: Approval given acquisition of the rural exchanges and lines of the Southern Bell Telephone & Telegraph Co. in Mason County by the Mason County Telephone Co. of Washington. Extensive plans for construction were revealed. The proposed plans cover the installation of new exchanges at Fernleaf, as well as Washington and Mayslick.

MICHIGAN.

June 18: Hearing held relative to the revaluation of the properties of the Michigan Associated Telephone Co., operating in Tecumseh. A. B. Boyce, president of the village, and F. B. Wood, attorney, represented Tecumseh at the hearing. O. B. Conner, manager of the local exchange, was also present, as were other officials of the Michigan Associated organization.

July 2: Hearing on the application of the Tri-County Telephone Co., of South Haven, for authority to issue securities totaling $650,000 to finance the purchase of the Hamilton Mutual Telephone Co. of Hamilton, Breedsville Mutual Telephone Co. of Breedsville, Grand Junction Mutual Telephone Co. of Grand Junction, and the Diamond Springs Telephone Co. of Diamond Springs. The Tri-County company proposes to issue $400,000 in mortgage bonds and $250,000 in class "A" stock.

July 7: Hearing on application of the Dansville Telephone Co. for an increase in rates and on complaints filed with the commission by users of the telephone service. The company seeks to increase the switching rate from $6 to $10 a year. Subscribers complain that the service has not always been effective.

MINNESOTA.

June 23: Order issued permitting the North Star Telephone Co., of Mountain Lake, to purchase the properties of the Odin Farmers Telephone Co., of Odin.

July 2: Hearing at Madison on application of the Central West Public Service Co. for authority to change its monthly rates for business, residence, and rural telephone service in Madison.

July 2: Hearing at Canby on application filed by the Central West Public Service Co. for authority to change its rates for business, residence and rural telephone service in its Canby exchange, all rates to be billed monthly in advance.

MISSOURI.

June 9: Application filed by the Pleasaton Telephone Co. for a certificate relating to a proposed issue of its preferred stock in the amount of $7,000.

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June 10: Application filed by the Home Telephone Co. of Harrison County for permission to increase rates.

June 18: Application filed by the Central Missouri Telephone Co. to abandon its Grand Pass exchange and trunk telephone users at Grand Pass to Waverly.

June 19: Approval given Southwestern Bell Telephone Co.'s proposed new schedule of rates for exchange service at Norborne.

NEBRASKA.

June 10: In the matter of the application of the Lincoln Telephone & Telegraph Co. for authority to cancel all grounded service rates at its exchanges at Saronville, Davenport, Elmwood, Fairmont, Harvard, Mead, Cedar Bluffs, Ithaca, Nora, Oak, Ruskin, Hardy, Nelson, Edgar, Murdock, Wahoo, Seward, Ceresco and Colon; it appearing that there is no longer any demand for such service and that the metallic service supplied is satisfactory, ordered that permission issue as asked.

June 12: Application of the Central Nebraska Telephone Co., of Grant, for authority to establish rates for toll service between Grant and Venango, found reasonable and granted.

June 14: Application filed by Nebraska Continental Telephone Co., of Columbus, for authority to issue $249,700 of common stock to be exchanged for stock in the Farmers & Merchants Telephone Co. of Alma and to retire indebtedness on the property of the latter.

June 16: In the matter of the application of the Lincoln Telephone & Telegraph Co. for authority to substitute automatic service for common battery at its Seward exchange and to publish increased rates therefor, it appearing that the revenues estimated to result from the operation of suggested schedules are necessary for corporate purposes, and they being reasonable, ordered that they shall become effective when and if automatic service is available to the subscribers at that exchange.

June 18: In the matter of the application of the Lincoln Telephone & Telegraph Co. for authority to increase rates at its Table Rock exchange, contingent upon and after it has substituted metallic magneto for grounded magneto service; found reasonable and granted without a hearing. An overwhelming majority of subscribers has consented to the change and to pay the new rates of $3 for individual business per month, $2 for individual residence and $1.75 for party-line residence.

June 18: In the matter of the application of the Monroe Independent Telephone Co. for authority to increase rates at its Newman Grove exchange, effective when the service has been changed to full and semi-automatic; schedule submitted found to be reasonable and necessary and authority issued to begin making new charges when service is available to patrons.

June 19: In the matter of the application of the Lincoln Telephone & Telegraph Co. for authority to increase rates at its Hastings exchange; further hearing held, testimony adduced, and case continued for determination, with leave to parties to file briefs within the next 20 days.

June 20: In the matter of the application of the Lincoln Telephone & Telegraph Co. for authority to increase rates at its Guide Rock exchange; hearing called and it appearing that the respondents are represented by J. M. Paul, attorney, ordered that case be continued until such time as another attorney can be secured. Commissioner Randall barred Mr. Paul from appearing because of contemptuous language used in a public speech, tending to destroy public confidence in the commission, when Mr. Paul refused to retract or apologize.

NEW YORK.

June 27: Hearing at Utica on complaint of L. Graves, G. M. Wantz and M. Buckly (Lewis county), against the Black River Telephone Co., Lowville, alleging unreasonable rates proposed be charged for telephone service.

June 27: Hearing at Utica in the matter of certain tariff schedules of the Black River Telephone Co., Lowville, proposed to be made effective July 1, 1929, but on which the tariffs were suspended; complaints of the boards of trustees of the villages of Lowville, Adams and Lyons Falls; also complaints of the board of supervisors of Lewis county.

OHIO.

June 16: Ohio Cities Telephone Co., of New Philadelphia and Dover, asked permission to issue stock with which to take over 13 rural and village telephone companies at a combined value of $791,400. The company seeks to issue 105,520 shares of common stock, no par value, at $7.50 per share to purchase the assets of the companies, subject to current liabilities as of March 1, 1930.

June 18: The Kingsville Telephone Co. authorized to increase its service rates. The new schedule is as follows: Business, individual, $2.75; two-party, $2.50; residence, individual, $2.25; four-party, $1.75; rural business, $2.00; and rural residence, $1.50.

OKLAHOMA.

June 12: Order issued on complaint of J. H. Geeslin and others, of Watonga, requiring the United Telephone Corp. within 30 days of the effective date of order, to reconnect their telephones until relieved of such obligation by the commission.

June 27: Hearing on complaint of Southwestern Bell Telephone Co. against L. A. Kingdom, owner and manager of the Sasakwa Telephone Co., alleging violation of commission order No. 912, failing and refusing to make remittances for toll calls. The Southwestern Bell company claims $1,813.49 is due it for long distance tolls handled by the Sasakwa company during February, March, April and May.

June 30: Hearing in matter of Chamber of Commerce of Quinton vs. Standard Telephone Co. on the application for adjustment of telephone rates in Quinton.

VERMONT.

June 13: New England Telephone & Telegraph Co. authorized to acquire the assets of the Franklin County Telephone Co. of Franklin.

WISCONSIN.

June 10: The Commonwealth Telephone Co. of Madison given permission to discontinue the Bridgeport exchange, operated jointly with the People's Telephone Co. of Mt. Hope, because it was losing money. Subscribers are to be connected with exchanges at either Wauzeka or Prairie du Chien.

June 21: Authorization given the Theresa Union Telephone Co., of Theresa, to issue $78,150 par value of its common stock in exchange $70,150 par value of common stock of the Random Lake Telephone Co., Eden Telephone Co., Cascade Telephone Co., Oakfield Telephone Co., and Fond du Lac Rural Telephone Co., and $8,000 principal amount of bonds of Oakfield Telephone Co.

June 24: Hearing at Madison on the application of the La Crosse Telephone Co., of La Crosse, for authority to increase and adjust its rates, rules and regulations for telephone service in its La Crosse and Onalaska exchanges.

June 27: Hearing at Madison on the application of Commonwealth Telephone Co., of Madison, for authority to increase rates at its Cottage Grove exchange.

July 1: Hearing at Sheboygan Falls on the application of the Sheboygan Falls Rural Telephone Co. for authority to increase its rates.

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Condensed Telephone News

Companies Are Urgently Requested to Forward to Us Promptly News Concerning Construction, Rebuilding, Financing, Election of Officers, Sales and Purchases of Exchanges or Other Activities

Construction.

ASTORIA, ILL.—The Illinois Commercial Telephone Co. is planning on rebuilding the outside portion of its plant in Astoria at an estimated cost of $8,000.

AVON, ILL.—The Intra State Telephone Co. with headquarters at Galesburg is constructing a two-story addition and basement to its building in Avon.

PRINCEVILLE, ILL.—The Illinois Central Telephone Co. with headquarters at Clinton, has started work of rebuilding its entire exchange at Princeville. A new common battery switchboard will be installed and the outside plant will be entirely rebuilt. Underground cable will replace open wire and aerial cable.

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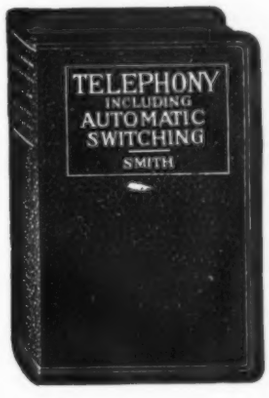
POSITION WANTED—Cableman, 27 years old, 9 years' Bell experience, with thorough knowledge of Wheatstone bridge. Address 7769, care TELEPHONY.

POSITION WANTED—By efficient, intelligent young man, as Clerk or Cashier. Five years' experience with Bell Company. Capable of assuming responsibility. Address No. 7776, care of TELEPHONY.

GENERAL MANAGER of large telephone system with experience abroad and in the U. S. A., thoroughly up-to-date in the designing, construction, maintenance and operation of telephone plants, large experience also in securing franchises for public utility companies in South America, wishes to associate himself with either large or small telephone company. Could furnish additional capital for telephone system requiring same. Address 7772, care TELEPHONY.

WANTED—Cable-splicing. Will consider job as local manager or repairman in connection with job as splicer. Best references. Address 7774, care TELEPHONY.



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Commercial Telephone Co. with headquarters at Madison, Wis., is making a rapid progress in setting poles and putting in underground work in West Frankfort.

Miscellaneous.

VIOLA, ILL.—The Viola Mutual Telephone Co. has elected B. D. Baxter, president; Lawrence Smith, vice-president; V. P. Terrey, treasurer; and Lee F. Ferson, secretary.

HEBRON, ILL.—C. C. Hunt has resigned as general manager of the Farmers New Era Telephone Co. and has been succeeded by William Helm, manager at Hebron.

HILLSBORO, ILL.—Lawrence Johnston, formerly general manager of the General Telephone Co., has been transferred to Ramsay as manager for the Illinois Commercial Telephone Co.

ROCKFORD, ILL.—Falling 25 feet onto the street pavement, G. R. Koglin, 35, Durand, lineman for the Illinois Bell Telephone Co., escaped without injury. A ladder on which he was working broke, toppling him to the pavement. Although he was temporarily stunned, he was back on his feet when the ambulance arrived.

ANDERSON, IND.—The board of public works has served notice on the Indiana Bell Telephone Co. that it must retain complete charge of streets of the city. At the last meeting of the board notice was given the company to remove a line of poles that had been placed, said to be without permission, along Madison avenue for a long cable line. Property owners on the street complained to the board against having sidewalk lawns used by the company to erect poles and string service wires.

The city clerk wrote a letter to the company telling it to use an alley paralleling the street, but the letter was ignored by the construction crew through a misunderstanding, it was said by M. G. Porter, an engineer for the company. The board then met and issued an order calling on the company to remove the poles already installed.

DETROIT, MICH.—The Michigan Bell Telephone Co. with headquarters in Detroit, recently purchased the Beaverton Telephone Co., at Beaverton.

CEDARVILLE, OHIO.—The Cedarville Telephone Co., of which David Bradfute was president and F. B. Turnbull was manager, has been sold to Warren Safford, president of the Troy Telephone Co., Troy.

LEWISBURG, OHIO—An important change was made recently in the operation of the telephone exchange here, operated by the Lewisburg Telephone Co., a subsidiary of the Standard Public Service Co., when Mrs. Maude Shively Dailey assumed full responsibility for the operation of the exchange under a private contract.

This policy was agreed upon recently and bids were asked by the company with four persons conversant with the telephone business bidding on the proposition. Mrs. Dailey was the low bidder. She will operate one trick as operator herself and employ two other operators. In addition, she will make all of the collections. The contract runs for one year.

POTEAU, OKLA.—At its next meeting the city council will be asked to call an election to vote on granting the newly-organized Le Flore County Telephone Co. a permit to operate here. All the directors of the company are residents of here or Heavener and have their investments in these places.

BOOKER, TEXAS—The Booker Telephone Co. has sold its holdings to the Standard Telephone Co. of Texas with headquarters at Lubbock, which has been doing some reconstruction work on the lines. It is understood a new switchboard and other equipment will be installed.

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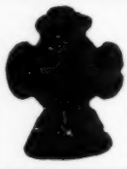
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TELEPHONY PUBLISHING CORP., 608 SO. DEARBORN ST., CHICAGO, ILL. TELEPHONE WABASH 8604

June 28, 1930 *Vol. 98. No. 26*

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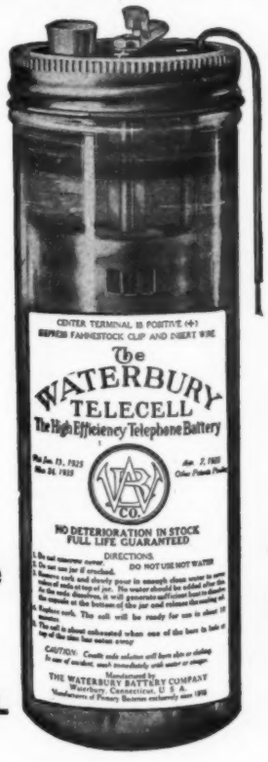

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Illustrated above is a popular two-position full relay PBX switchboard equipped with bakelite covered key and plug shelf with flush mounted keys and black escutcheons.

The exceptionally pleasing appearance of this switchboard is consistent with reliable service characteristic of all LEICH equipment.

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"Manufacturers of Reliable Telephone Equipment for 25 Years"

"An Average Life of 35 Years",

says Southwestern Bell Telephone Company

"Two-Wire" Telephone Lines Are Dependable
"SHORTY" EDWARDS, construction gang foreman, stringing wires on the new "two-wire" rural line at Glasgow, Mo. Note how the pole, placed at a bend in the road, leans to prevent slack in the wires, and is guyed for greater strength. The sturdy construction and the bracing of all parts form a striking contrast to the weakness of the poles, for example, creosoted for protection against rot and wood-boring insects, have an average life of 35 years.
SOUTHWESTERN BELL TELEPHONE COMPANY

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THE Bell Telephone Company abides by the creed that "Service Must Not Be Interrupted." Bell has used excellent judgment in using CREOSOTED POLES, and such purchases are made only after tests proving the efficiency of the materials concerned.

Service conditions of unusual severity hold no terrors for NATIONAL Pressure-Creosoted Poles. These poles, produced from Southern Yellow Pine, are strong, uniform, rot and insect-proof, grass-fire resistant, require the minimum of maintenance and cost less per-pole-per-year than other types.

May we send you our new pole booklet?

National Lumber & Creosoting Company

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Plants: Texarkana, Tex.; Houston, Tex.; Kansas City, Mo.; Salida, Colo.; Alexandria, La.; Columbia Park (Finney), Ohio; Superior, Wis.; Denver, Colo.

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Coordinated for

The straight, unbroken line of the West Point Cadets as they swing across the parade grounds, their precision of movement, their perfect execution of formations, all result from the coordination of the various components of the corps.

The perfect service and the satisfaction to subscribers resulting from the Stromberg-Carlson Super-Service Switchboard come from the perfect coordination of the various units of the board. It is designed to give just as fast and accurate service at rush hours as at times of ordinary load.

This results from several exclusive Stromberg-Carlson features among which are:

The simplified keyboard, which relieves the operator from the strain of associating the correct cord and key . . . there being but one set of ringing keys which she controls by the touch system.

The advance plug-in, which speeds up service by giving the operator the freedom of plugging up one call while answering a previous one. At the same time, it insures accuracy because the operator's set is held from the second call until the first one has been completed.

Stromberg-Carlson engineers will gladly send you a bulletin that explains in detail these and the many other features of the Stromberg-Carlson Super-Service Switchboard and prove that it is the most economical and efficient telephone switching equipment on the market today.

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It is good business to replace that magneto switchboard with more modern equipment which quickly pays for itself thru increased returns. The increased revenue, greater savings and lower maintenance costs are reasons why most large magneto exchanges can and should install a Kellogg Universal Switchboard.

Kellogg UNIVERSAL Switchboard—A Profitable Investment

By installing a Universal, you can gradually change from magneto to common battery, one or more lines at a time, as your subscribers request the improved service. There is no need for the immediate scrapping of all present magneto telephones, nor the necessity to rebuild the entire outside plant for full common battery service.

Let our engineers show you how modernizing your plant will increase your earnings.

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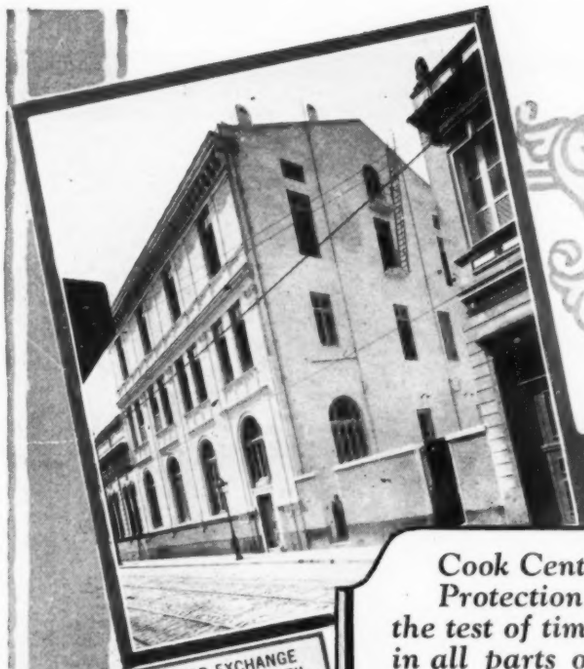

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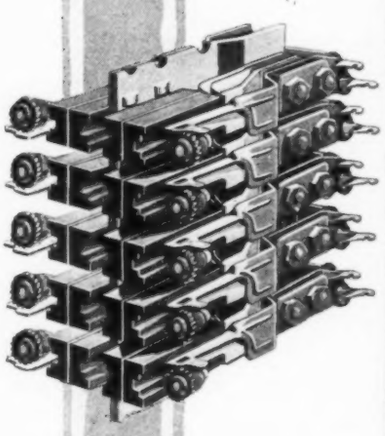

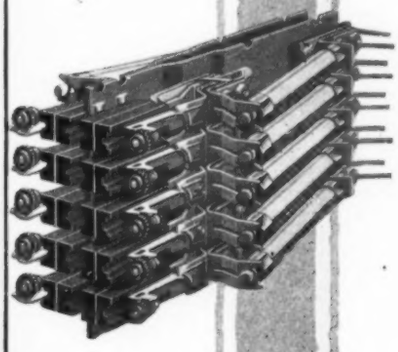

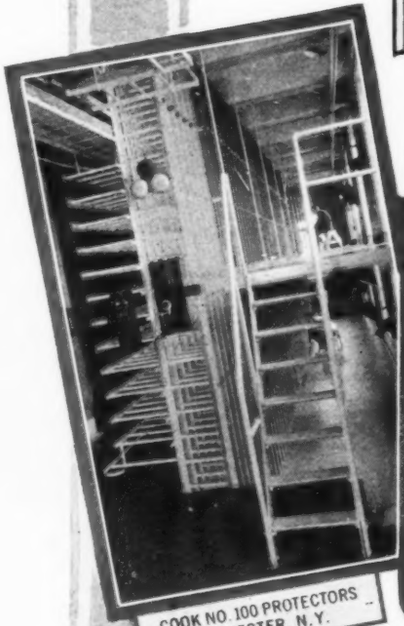

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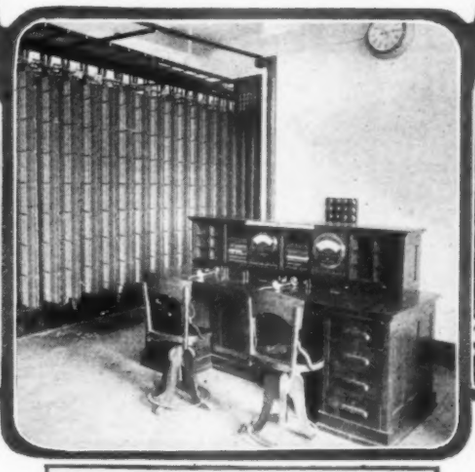

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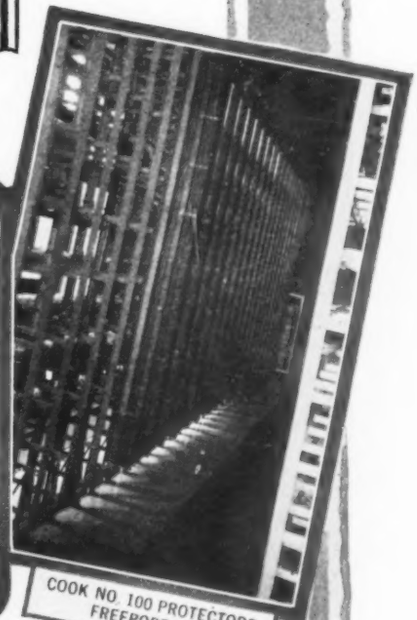

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No Job Is Too Large - T

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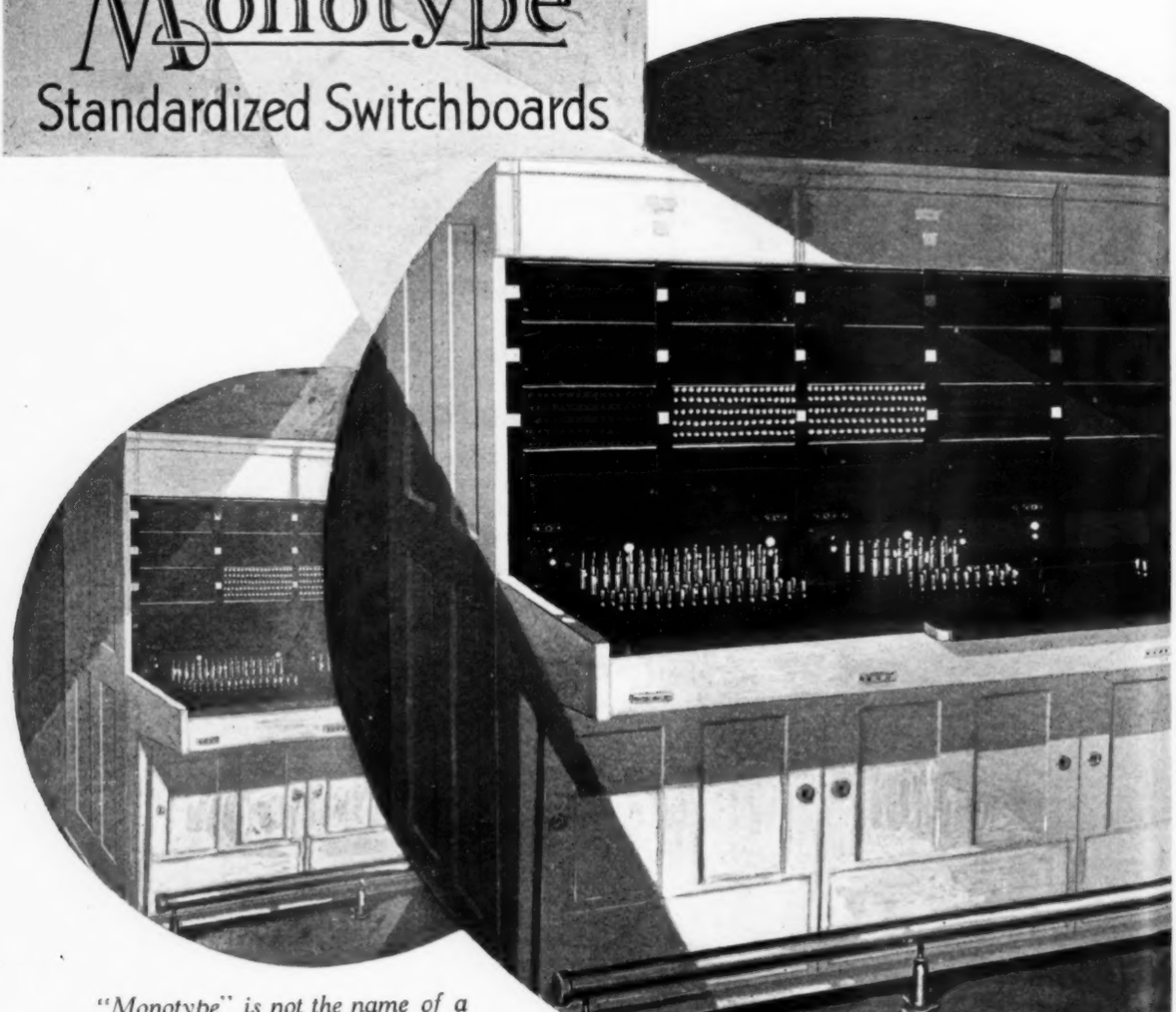
Standardized Switchboards



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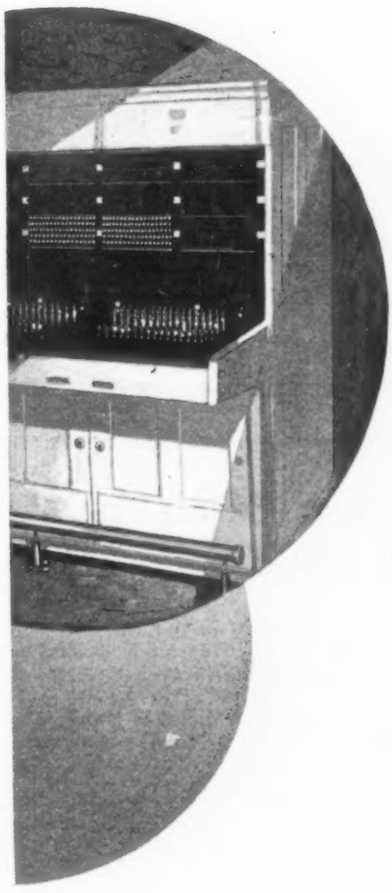

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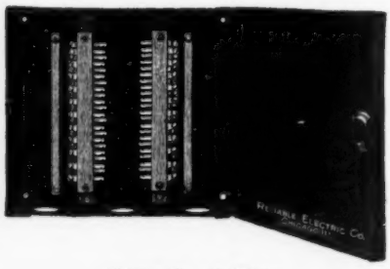

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For Telephone Distribution.
Cable Wires Soldered.

Telephone wires under binding posts.

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Double Galvanized Telephone Wire

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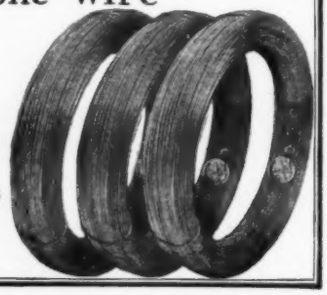

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This preferred stock is preferred as to assets. The consolidated net assets are equivalent to $380 for each share. For the $7 required for dividends there are $21 a share in earnings available for that purpose.

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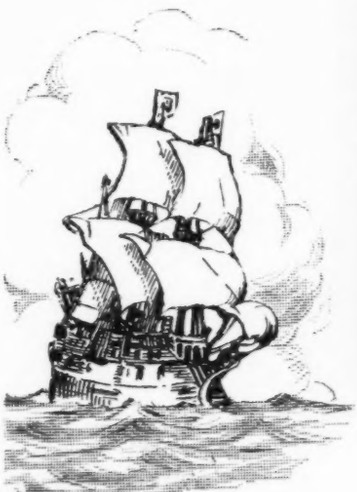
Telephone Bldg. KANSAS CITY
Boatmen's Bank Bldg. ST. LOUIS

"A Bristol Ship to Breton came"



Cabot setting sail from Bristol 1497

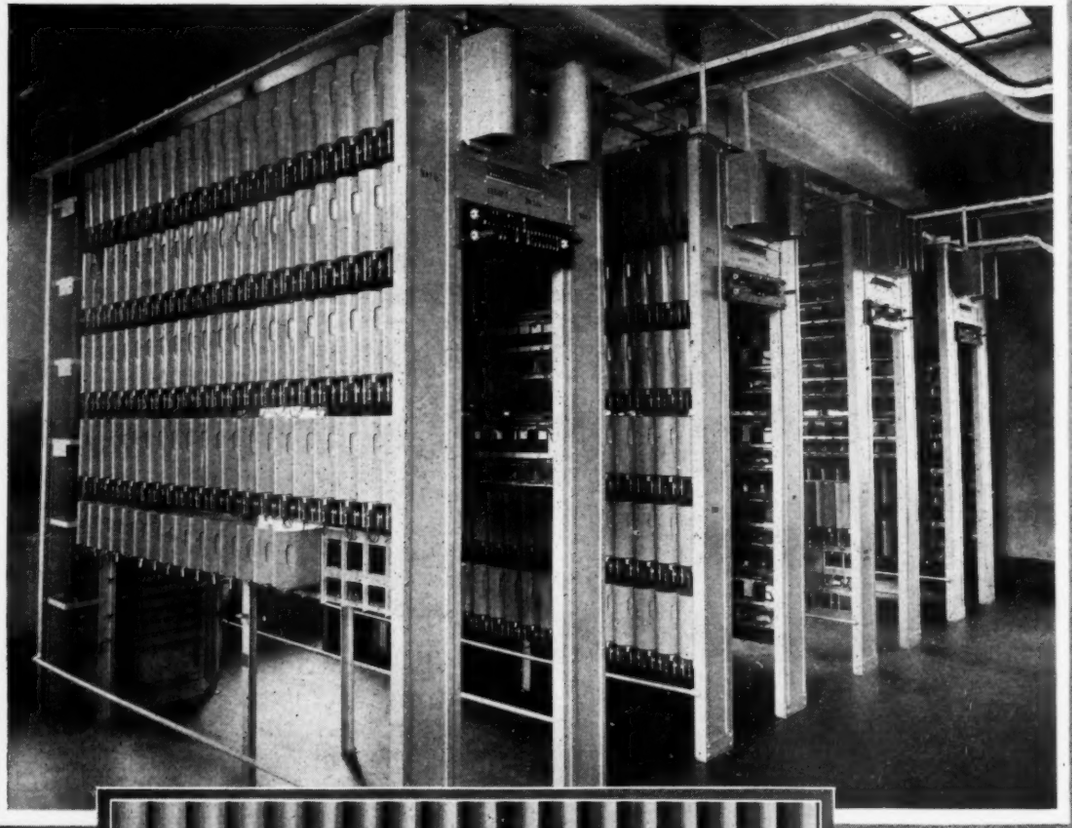
.....and in coming forged another link in the chain of pioneer communications which bound the New World to the Old.

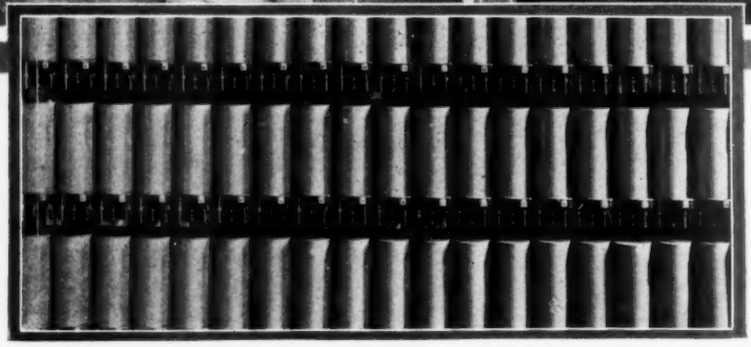
The sea-borne trade of Britain, the hazardous paths of Commerce—links with France and Spain and the Canaries, with the Levant, the Nile and the Baltic — all, in those far-off days, centered in Bristol, and it is a fitting climax that the city which, five hundred years ago, fostered the communications of a growing world should itself be served by the best and most modern system of communication, the Strowger Dial Telephone.

The British Post Office have placed a contract with Automatic Telephone Manufacturing Co., Ltd. for the equipment of ten Strowger Exchanges in the area, totalling nearly 20,000 lines.

Automatic Telephone Manufacturing Co., Ltd.
Strowger Works, Liverpool, England
ASSOCIATED COMPANY:
International Automatic Telephone Co., Ltd., London

The Selector—Sym





STROWGE

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THE POPULAR LINE—
Because They're Dependable!

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They are especially designed to meet the needs of the telephone service man, as they have patented improvements enabling faster, easier and economical work. Stormy weather can in no way affect them as they are built to stand all adverse weather conditions.

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EFFECTIVE *in maintaining your underground and aerial cable in perfect condition*
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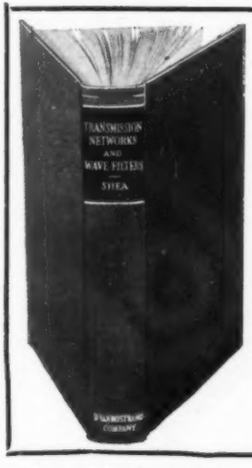

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Member of the Technical Staff, Bell Telephone Laboratories
The calculation and design of telephone networks and wave filters are fully presented in this book, written by Mr. T. E. Shea of Bell Telephone Laboratories. It embodies the most recent developments in this field as well as the standard practice. "The Telephone Equipment of 1929," "The New Science Telephony," "Transmission Networks and Wave Filters" and "Radio Broadcasting Engineering" are a few of the subjects capably discussed in this valuable book.
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We recommend it as of great interest and value to every telephone man.
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C13.

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Where the service is the most severe you invariably find the FWD Truck at work . . . it has the power and traction to pull through the toughest going. FWD's acceptance is duly credited to its ability to serve efficiently in extraordinary as well as in ordinary truck transportation . . . it is a dependable, economical power unit.

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Canadian Factory . . . KITCHENER, ONTARIO

BACKED BY NATION FWD **WIDE SERVICE**

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TELEPHONE EXCHANGES

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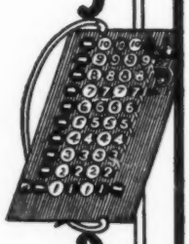
SATELLITE SYSTEMS
REMOTE KEY-CONTROLLED

PRIVATE EXCHANGES
ALL-RELAY TYPE

HUNDREDS IN SERVICE



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